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G. A. Lancs.
8° 5.

Lancashire Y 5

A REPORT

OF THE STATE OF

AGRICULTURE IN LANCASHIRE;

WITH

OBSERVATIONS ON THE POLITICAL POSITION AND GENERAL PROSPECTS OF THE AGRICULTURAL CLASSES;

AND A

TABULAR STATEMENT

OF THE

PRICES OF CORN AND WAGES OF HUSBANDRY,

ETC.,

AT VARIOUS PERIODS SINCE THE NORMAN CONQUEST;

BY GEORGE BEESLEY,

LAND AGENT.

MDCCCXLIX.
PRESTON: DOBSON AND SON;
J. Walkden, Blackburn; T. Sutcliffe, Burnley; A. Milner, Lancaster; Simms and Dinham
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Simpkin, Marshall, and Co., London; and all Booksellers.

1849
Gough Adds. Lancashire
8° 5.

The following Essay was written for the purpose of competing for the Prize offered by the Royal Agricultural Society of England, for the best Report on the Farming of Lancashire, but in consequence of not being sent in due time, was disqualified for competition.

As some of the facts and observations contained in it may be interesting to the owners and cultivators of land, the Author has ventured to submit it in its present form to the public.

Preston, May 16, 1849.

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LANCASHIRE FARMING.

The county of Lancaster appears to have been distinguished at a very early period in the history of the country, which distinction probably had its origin in the ancient character of the surface of the county and its situation in the island.

The southern and eastern parts of the country having become subject to hostile incursions, in process of time fell into the hands of the invaders; the primitive inhabitants retreated into the interior, and, driven farther by every successive discomfiture, many of them found an asylum among the hills, vallies, and extensive forests of Lancashire

The numerous military roads and stations found to have existed within the county, evince that even in the Roman era, the congregation of the people in this part of the country had rendered their numbers formidable, and necessitated the strict surveillance of the conquerors to perpetuate their subjection.

Subsequently, when the Saxons overspread the country, considerable numbers located themselves in Lancashire, as is apparent from the number of villages that are known to have existed, and the churches that were built previous to the Norman Conquest, and as may be proved by the Saxon character of the native dialects and the genius of the people of the present age.

Lancashire, however, is not mentioned in Doomsday Book as a distinct county, though parts of it are included in the adjoining counties. The wild condition of the country and the lawless character of the inhabitants at that period may have prevented its exploration.

During the middle ages, the power and importance of Lancashire is shewn by the contests of the Roses for the sovereignty of the kingdom.

And in recent times, when civil discord hath ceased to cause bloodshed and desolation,—when the cultivation of the arts of peace alone give pre-eminence, and men contend, not for mutual destruction, but the realization of excellence, the mighty resources of Lancashire—its industrial enterprize and commercial activity entitle this county to an exalted place in the national estimation. But it is not in its manufacturing and commercial character, but to its position and capabilities as an agricultural county that our remarks must be restricted.

The geographical situation of Lancashire is between 53° 20′ and 54° 25′ north latitude, and between 2° and 3° 17′ W longitude. Its extreme length from north to south is 74 miles: its greatest breadth 44 miles: and its area 1765 square miles. The climate is humid, the mean temperature of the year is 48.7°, and the mean extremes 82° and 18°. The temperature being equalized, by proximity to the sea, very extreme degrees of heat or cold are not experienced. The prevailing winds are the S., S.W., W., and N.W. According to Dr. Garnett, the north and easterly winds blow 149 days in the year; and the south and westerly 216 days.* A great quantity of rain falls annually in Lancashire, as the following statement, compiled from the results of many years' observations, will shew; but the air is pure and the climate favourable to longevity:—

DEPTH OF RAIN.

	Inches.	*Inches.*	
London	20	to 22.2	(Dalton).
Chatsworth	27.6		
Edinburgh	22	to 26	(Adie).
Glasgow	21.3		
Dumfries	36.9		
Kendal (Westmorland)	53.9		
Keswick (Cumberland)	67.5		
Liverpool (Lancashire)	34		
Manchester (Lancashire)	36		
Lancaster (Lancashire)	39.7		

Mean of England, according to Dalton, 31.3 in.

CLIMATE.—Lancashire has been denominated the "water-pot" of England; but the table shows that a greater quantity of rain falls in Westmorland and Cumberland than in Lancashire. Meteorologists have observed that a greater quantity of rain falls near the sea than at sea. The winds convey the vapour towards the land, where a colder temperature causes its condensation. In Lancashire the westerly winds prevail the greater part of the year, and carry the vapour from the sea towards the hills which separate Lancashire and Yorkshire, which arrest the clouds in their progress, and rain is precipitated. The S. and S.W. are the rainy winds,—the vapour being conveyed from the warmer regions of the south, is condensed in the colder latitudes of Lancashire and Cumberland, and invariably rain succeeds. According to a register kept by Mr. J. Poole, of Rhodes, five miles north-east of Manchester, for 15 years, from 1769 to 1784, the average number of fair days in the year was $166\frac{1}{9}$, and the average number of rainy days $198\frac{8}{9}$ †.

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* Memoirs of the Manchester Literary and Philosophical Society, 4 ed., 1793.

The character of the soil in many of the central parts of the county is clayey loam, very retentive of moisture; and this circumstance, together with the saline particles contained in the air, which diminish the force of evaporation, render the climate damper than in other places where the absolute quantity of rain is as great. Much improvement has been effected within the present century, by drainage; and the ague—to which forty or fifty years ago many persons in the Fylde district were periodically liable—is now seldom experienced; still Lancashire preserves, in some degree, the character given it of old by Tacitus, in his life of Agricola,—"*Cœlum crebris imbribus et nebulis fœdum.*"

Heavy rains frequently fall in July, August, and September; and in consequence, the finer descriptions of fruit, as peaches, &c., seldom ripen perfectly, and are of inferior flavour. The corn crops, too, are often but indifferently ripened on the colder soils, and not unfrequently damaged by the rains.

The pastures and meadows are, however, benefitted by the moisture of the atmosphere; and the grass is more abundant in quantity, though not so good in quality, as in land of similar character in the southern counties.

GEOLOGICAL CHARACTER AND DESCRIPTION OF SOIL.

In an agricultural view, Lancashire may be separated into two general divisions,—the first comprising the mountainous districts, which are chiefly appropriated to pasturage; and the second, the lowland districts, which include soils of diversified character, suited for all the purposes of husbandry.

Under the first division are comprehended the mountainous and and moory tracts, which extend from Rochdale, in the south, along the east side of the county to near Kirby Lonsdale, adjoining the northern boundary. The elevation of these mountainous ridges varies from 300 to 1500 feet above the level of the sea. They are chiefly composed of millstone grit, of various shades of colour and different degrees of texture, and, in consequence, of variable value for building purposes. There are a few white limestone hills at Chipping, Longridge, and Clitheroe. There is also a range of white limestone hills commencing on the north bank of the Lune, near Lancaster, passing through Halton, Kellet, Caponwray, Priest-Hutton, to Yealand, on the Westmorland boundary. The Furness and Cartmel fells, superposed upon whinstone, and the hills of dark limestone about Coniston and Hawkshead, north of Morecambe Bay, complete the mountainous section.

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* Memoirs of the Manchester Literary and Philosophical Society, 4 ed., 1793.

The lands in this division are chiefly in grass, though there are some parts of the least elevated districts in arable cultivation. The soil is of a loamy, gritty, or peaty character, and, excepting upon the limestone, the quality of the grass very inferior. The upper part of the more elevated ridges is wild and uncultivated, and overspread with heath, and in many instances unenclosed.

The *lowland district* comprises the valley lands adjoining the rivers that intersect the mountain ridges—as the valleys of the Lune, Wenning, Wyre, Brock, Ribble, Darwen, &c., which consist of rich alluvial lands, chiefly in pasturage; also the sandy soil arable district between the Ribble and Mersey, around Ormskirk; the clayey loam and alluvial lands in the southern boundary of the county, and in the Fylde district, between the Ribble and Lune; and the various moss lands, upwards of 20,000 acres in extent, lying in detached portions in various parts of the county—as Chat moss, Kirby moss, Tarleton moss, Pilling and Rawcliffe mosses, and many others.

GRASS LANDS.

The numerous large towns and manufacturing villages with large populations, render the supply of milk and butter of chief importance to the occupiers of land in their vicinity; and nearly the whole of the lands within a circle of four or five miles' radius around the principal towns are kept in grass; not more than one-eighth of the farms being in an arable state; and in many districts there being no part arable. These farms are generally from 20 to 50 acres in extent, though there are a few in each locality considerably larger. The management of the stock of cattle, and conveying the milk, &c., daily to the neighbouring town, constitute the chief occupations on the milk farms. The proportion of meadow land to pasture is as 5 to 7.

In the mountainous district on the east side of the county, from Blackburn and Burnley in the north, to Bolton, Bury, and Rochdale in the south, there is a very large population; and the towns and villages are generally situated in the valleys, through each of which flows a brook or river. The sides of the hills and the valleys are occupied with numerous small milk farms. The soil is generally strong, superposed upon a stratum of red tenacious clay, overlying rocks of millstone grit, and the coal measures. The soil is generally poor, and the ground difficult of access; but, in consequence of its proximity to the towns, and the large demand for milk and butter, the value of the land is quite as great as in many other parts of the county, where there are much greater natural advantages. It is entirely owing to manufacturing enterprise, and the consequent increase of population, that much of this land has been reclaimed from the waste, and the value advanced from a few shillings to 30s. and 40s. per acre. The occupiers of land in this district can scarcely be considered farmers: many of them being persons engaged in some way or other with the mining, manufacturing, or some other of the multifarious occupations of the district.

Before the full development of the factory system, when textile fabrics were chiefly of domestic manufacture, this part of the country was in a very flourishing state. A few acres of land, on which a cottage and weaving shop had been erected, was looked upon in the light of a prize to be obtained, and the rents demanded were extremely high.

Southward from Bury, towards Manchester, the surface is less irregular than further northward, and the land is almost wholly kept permanently in grass. It is of much better quality than the moor lands near Haslingden, Accrington, &c., and is much fertilized by manuring. Being in the heart of the manufacturing district, and overspread with a dense population, the rents are much higher than of land of similar quality in other places, ranging from £3 to £4 per acre.

Northward from Preston, along the eastern boundary to near Kirby Lonsdale, on the Westmorland side, the land is of similar character to that of the district above described, the surface being undulating, the soil a strong loam, resting upon granite rock. The chief disposable produce of the farms in this district is cheese. Sheep were formerly kept upon the hills, but their numbers have been considerably reduced, in consequence of their rambling propensities; and, excepting on a few of the highest ridges, as Bleasdale moors, &c., they have been almost wholly supplanted by cattle. There being no coal in this district, there are very few manufactories; and, in consequence, the value of the land is considerably less than near the manufacturing towns in the southern division, where the land is of a similarly infertile character.

In the district around Liverpool, to Ormskirk in the north and Prescot in the east, there is a considerable extent of superior grass land, lying in many places on the new red sandstone rocks, which is naturally dry, and affords excellent pasturage.

MILK FARMS.—On the milk farms situate in the vicinity of the towns and villages, the cattle feed in the pastures in summer in the usual way, and in the winter are fed with hay, a few turnips, bran, and brewers' grains, mixed with oatmeal or flour. Turnips are not extensively used for milk cows, except in Liverpool, and are not generally considered economical food for the production of milk and butter. In the neighbourhood of Preston, Wigan, Blackburn, &c., the grass land, excepting the marshes, is of second-rate quality. It requires three to four acres for the maintenance of a cow during the whole year. The price of milk is 8d. to 10d. per gallon, and is retailed by the farmers; butter, on the average, 1s. per pound. The rents vary, according to the quality of the land and size of the farm (the small farms paying the highest rents), from 25s. to 35s. per acre. In the hilly districts north from Bury to Accrington, &c., the land is poorer, and a somewhat greater quantity per head of cattle will be required for pasturage; but the cattle kept in the hilly districts are of a hardier character than those of the lowlands, and generally smaller. The average price of milk here is 8d. per gallon, and the rents 20s. to 30s. per acre.

Between Bury and Manchester, and surrounding district, the land, as before stated, is of better quality: the milk is sold at 10d. to 1s. per gallon, and the rents are £3 to £4 per acre.

In the Liverpool district, there are many superior milk farms. Milk is conveyed in carts daily, a distance of 10 or 12 miles: the rents of these farms are variable, according to the quality of the land and the distance from the town, from £2 to £4 per acre. The retail price of milk in Liverpool is higher than in any other of the towns of Lancashire: the present price of the best milk is 1s. to 1s. 4d. per gallon.

Large quantities of milk are forwarded daily, by the railways, to Liverpool, Manchester, and Bolton,—in some instances a distance of 40 miles, but ordinarily from 15 to 20. It is sold to the wholesale dealers, at from 6d. to 8d. per gallon, they paying the carriage, and is retailed at 8d. to 10d., which is from 4d. to 6d. per gallon less than the price of milk conveyed in spring carts or produced in the towns. The vibratory motion to which the milk is subjected when sent by railway, causes it to yield less cream than milk of the same quality that has not been thus agitated. It is half churned, and in summer speedily becomes sour.

Many of the milk farmers expend upwards of £10 per cow in the purchase of provender. The cows are well fed and well attended, and, on account of their nutritious food, the manure produced is rich in fertilizing ingredients, and the land is kept in good condition, and in many places is increasing in fertility. The farmers, though not realizing large incomes, are making a steady profit, and appear in better circumstances generally, than those of the arable districts. The value of the gross produce of a cow, when milk is at the average price of 10d. per gallon, is from £20 to £30.

In the neighbourhood of Lancaster and the country to the northward, there is a large extent of superior grass land. The soil is of a freer character, and is dryer, lying upon limestone, gravel, or other porous substratum. There are many superior stocks of cattle kept in this district. There are some dairy farms; but more attention is paid to grazing cattle for the butcher here than in any other part of Lancashire, and for which it is well adapted. Some of the best lands let for grazing purposes at £2 to £3 per acre. There is a tract of excellent land in the valley of the Lune, north of Lancaster, which is said to be more remarkable for its fattening qualities than for dairy purposes; but, in general, the alluvial lands on the sides of the rivers—a large proportion of which are kept in permanent pasture—are valuable for any purpose; and, as well as being valuable for feeding or store stock, are the best cheese lands in the county.

ARABLE LAND.

The arable lands may be comprised within two general divisions, according to the texture of the soil, viz., the heavy, comprising the clayey, loam, and alluvial or marshy soils, and the light soils of the sand and moss lands.

Strong Land.—There is much diversity in the method of cultivation and course of cropping, not in different localities only, but in the same district No rule can be laid down which will bear a general application. There is much more uniformity in the method of management of the farmers who adopt the modern convertible husbandry, than in the practices of farmers of the old school. The introduction and partial adoption of the "new husbandry" has tended still further to diversify the modes of farming, and the course of changes of the crops.

In some districts the doctrines of the modern system receive no countenance, and the practice of the farmers continues the same as in times long antecedent, and the old course of cropping is preserved. Two or three crops of oats are taken after grass lea, followed by beans broadcast,—naked fallow, manured with compost of lime and soil, or soil and dung, &c., wheat, oats. Where this system of cropping is observed, from two-thirds to three-fourths of the farm is kept in permanent grass, on which a stock of cattle is kept for dairy purposes. The manure which is applied to the fallow ground is the produce of the dairy stock, kept on hay and straw in the stall during winter. It is obvious that this appropriation of the manure is made at the expense of the meadow land, and when the extent of ploughing land amounts to even one-fourth of the whole area of the farm, is decidedly reprehensible. The dung produced by cattle fed upon hay will not, except in very fertile land—in the average meadow lands of Lancashire—be more than sufficient to re-manure one quarter of the extent of land which produced the hay consumed. But to preserve meadow land in proper condition, it is necessary to manure every second—or, at furthest, every third year. And if we allow the consumption of straw produced on the arable land to increase the manure, so that one-third, instead of one-fourth of the meadow land can be top-dressed annually; still it is apparent there can be no surplus of manure; but that the grass land requires, that it may not be impoverished, the whole of the manure produced by the cattle it sustains.

When agreements are committed to writing on this class of farms, the tenant is usually bound to spread all the farm-yard manure upon the meadow land. If the manure required for the arable land were purchased, the above method of cropping might not be objectionable; as the expenses of cultivation may be considered at a minimum, but the high price of manure in towns (4s. to 7s. per ton) renders this seldom advantageous; and, excepting for the potatoe crop, purchases of manure are seldom made.

In strong land farms in general, the less the proportion of arable land the better is the character of the farms, and condition of the occupiers.

Another mode of cropping, now more extensively practised than the former, is as follows:—1st, oats or beans; 2nd, beans or oats; 3rd, fallow; 4th, wheat; 5th, clover;—or, 1st, oats; 2nd, drilled beans; 3rd, wheat; 4th, clover. The introduction of clover once in four or five years renders both these methods of cropping preferable to the foregoing. The latter is probably the better of the two, though beans, even when sown in rows, and admitting of hand and horse hoeing, are difficult to keep perfectly clean, and, in consequence, a naked fallow cannot be entirely dispensed with; but its recurrence once in eight instead of every four years may be sufficiently frequent.

A third method is characterized by the introduction of turnips, and dispensing with naked fallows. The following is the rotation of crops:—1, oats; 2, drill crops; (turnips, potatoes, drilled beans, or naked fallow, manured) 3, wheat or barley; 4, clover, mown or pastured two or three years.

This course is less liable to objection than either of the foregoing, but it is not practicable in all seasons on the stronger soils, in consequence of the great difficulty of working them for drill crops. For the sandy loams it is well adapted, the clover and turnips being consumed on the farm. By the aid of a small additional quantity of manure, or the consumption of grain or oil cake, &c., by the cattle, the land may be kept in good condition.

The following statements show the comparative advantages of the first and last described methods of cropping:—

Expense of Labour and Seed.	£	s.	d.	*Produce.*	£	s.	d.
Oats	1	17	6	40 bushels, at 2s. 6d.	5	0	0
Beans	1	17	6	30 bushels, at 4s. 0d.	6	0	0
Wheat (and manure)	8	18	6	24 bushels, at 7s. 6d.	8	8	0
4 yrs. rent, at 30s. ℘ acre	6	0	0				
„ tithes at 3s. „	0	12	0				
„ rates at 5s. „	1	0	0				
Cost of production	£20	5	6	Value of produce	£19	8	0

Loss per acre, in four years, 17s. 6d., or 4s. 4½d. per acre yearly.

SECOND METHOD.

Expenses of Labour, Seed, and Manure.				*Value of Produce.*			
Oats	1	17	6	40 bushels, at 2s. 6d.	5	0	0
Drilled Beans (manured)	8	4	0	40 bushels, at 7s.	8	0	0
Wheat	2	18	0	21 bushels, at 7s.	7	7	0
Turnips	7	7	0	15 bushels, at 8s.	6	0	0
Barley	1	19	0	40 bushels, at 3s. 3d.	6	10	0
Clover	2	16	0	2½ tons	7	0	0
6 yrs. rent, at 30s. ℘ acre	9	0	0				
„ tithes, at 3s. „	0	18	0				
„ rates, at 5s. „	1	10	0				
	£36	9	6	Value of Produce	£39	17	0

Profit per acre in 6 years, £3 7s. 6d., or 11s. 3d. per acre yearly.

The value of the straw is not included in either of the above statements, and probably the value of the turnips and clover *for consumption on the farm* may be somewhat overstated; still, the latter method has advantages in respect to immediate profit, and the fertility of the land will be better maintained. The reason why the farmers, who practise on the clayey soils the first-described method of cropping, which shows an annual loss of 4s. 4½d. per acre, or on a farm of 100 acres £21 17s. 6d., are able to meet their engagements is, that their labour is not remunerated at the current value on which the above calculations are made. That is, if a farmer of 100 acres of land were to pay hired labourers 10s. to 12s. per week, he would lose, independent of interest on his capital, £21 17s. 6d. yearly. But the fact is, that he and his family, or hired yearly servants, do not cost in food, clothing, &c., which is all the remuneration the former receive, more than 8s. or 9s. per week. Besides, they in general sell a portion of the straw and hay, and by these means make up the deficiency.

Strong lands are in all countries the most difficult to cultivate, and are especially so in this county, on account of the humidity of the climate. They constitute, also, a large proportion of the cultivated lands; and, being the first brought within the domain of cultivation, have, by repeated and ill-judged cropping, become in many places very infertile, and require the greatest degree of renovation and improvement

The great expenses of working these soils, the difficulty of drainage, the imperfect ripening of the crops in some seasons, and the general inapplicability, on some of the more tenacious, of the modern convertible husbandry; and, under these circumstances, a comparatively high scale of rents, tithes, and taxation, have caused these soils to remain the most backward in the march of improvement.

On the greater proportion of the strong lands, underlying a bed of clay, four to five feet in thickness, is a stratum of marl, 10 to 20 feet deep, containing a considerable proportion of unctuous and calcareous matter. In the early part of the present century, when the high prices of grain stimulated the cupidity of farmers and landowners, a large quantity of the permanent grass land was converted into tillage, and the practice of marling prevailed in every locality where marl was to be found. It was often obtained from some part of the land to be marled, but sometimes conveyed a considerable distance. It was carted and spread upon the land in the summer months, at the rate of several hundred cart loads per acre. The completion of the marling season was celebrated by festive entertainments, and the procession of the men employed, with the horses and carts,—decorated with ribbons—in the neighbouring villages.

The operation of marling entailed on the farmer very great expense, but occasioned a great increase in the produce of the crops. Correct principles of alternation of crops were not at that period generally known; and, if they had, it is probable that, by the incentive of high prices, owners and occupiers of land would have disregarded, for obvious advantage, the consideration of consequences. The large quantities of marl that were frequently applied to lands sufficiently rich in argillaceous matter, together with severe cropping afterwards practised, have caused the impoverishment of a considerable proportion of the loams, as well as much of the alluvial lands of Lancashire. By frequent ploughing and pulverising, the marl became exhausted of its calcareous and other fertilizing constituents; but the clayey portion remained, increasing the tenacity of the soil, rendering it difficult to work, and infertile. The evil consequences that have been observed of the practice of marling have led to its entire abandonment on the clay lands; but on the sandy and moss soils marling is still in good repute; and these soils being greatly deficient of aluminous constituents, marling is the means by which their permanent improvement *for the production of grain* can be most effectually accomplished. It gives consistency to the moss soils, and renders the sand more retentive of moisture. The experience of the last few years has, however, shown that the marled lands have not been favourable for the growth of potatoes, the largest and soundest crops having been obtained from lands that have not been subjected to this operation.

LIGHT SOIL DISTRICT.—SANDY AND MOSS LANDS.

It now remains to detail the mode of cultivation and course of cropping on the lighter soils, which consist chiefly of sand and moss, but may comprise also some of a gravelly character.

Sandy Soils.—Along the sea coast between Liverpool and Lancaster, is a belt of light incoherent sandy soil, about a mile in breadth, distinguished in several places as "blowing sands." This land has been formed by the accumulation of sand drifted from the sea beach, as is evident from the process now observable of formation and change of the "Star Hills." The Star Hills are small clusters of sand hills, about 10ft. to 20ft. in height, which skirt the sea coast in many places, as between Liverpool and Southport, Lytham and Blackpool, &c. They are called " Star Hills" in consequence of being covered with a plant provincially termed " star,"—the *arundo arenaria*—which has the appearance of rushes, growing upon dry ground. This is the only plant that will grow upon the arid accumulation of sand cast upon the shore, and is of singular utility in causing the elevation of the beach, and thereby preventing the inroad of the sea. It propagates itself from seed, and speedily spreads over the sandy waste. But when any portion of the beach exposed to the action of the water is not sufficiently covered with herbage, it is customary to dig up the roots of " star" growing at a distance from the shore, and divide and transplant them, about 9 to 12 inches asunder. This plant causes the formation of the star hills; it takes root and spreads over the surface, and the sand blown about by the winds falls upon the part thus covered with vegetation, and is there retained, and a mound or small hill is produced

There is a very extensive champaign district, in which the soil in general is of a light and sandy character, in the south-eastern corner of the county. It is bounded on the west by the sea, on the south by the Mersey, on the south east by the River Douglas, and extending fifteen to eighteen miles east and north from Liverpool. It is entirely agricultural, and the most valuable and best cultivated district, and may not be inaptly termed the garden of Lancashire. The soil is a sandy loam; there are some isolated portions of clay lands, and various mosses of considerable extent. A very large proportion of the land in this district is under arable cultivation. In some localities not 1-20th part of the farms are in permanent grass. It is on this kind of land that the alternate system of corn and green crops is more especially adapted, and this is the kind of farming pursued in some parts of the district above described, as also on the light lands in soms parts of the Fylde, and in a portion of the county north of Lancaster.

Notwithstanding the free permeability to water of this description of land, in many places it requires draining before it can be cultivated with advantage, in conseqnence of lying flat, and in many places upon a clayey substratum. It may, however, be drained more effectually, and at much less expense than any other description of land. In some of the less coherent sands, more evil is in general to be apprehended from excess of drought than undue quantity of moisture.

In the summer, if rains do not frequently occur, the moisture in the surface soil is speedily evaporated, the grass is burnt up, and the corn crops stinted in growth, and the turnip plant propagated and preserved with difficulty. A wet season is most favourable for the crops on the sandy soils, but a dry one for clay and alluvial districts.

The practice of marling, which, as stated above, has fallen into disuse on the stronger soils, is much approved of for sand lands, where the expense and distance of cartage does not preclude the advantages of its application. When properly incorporated with the soil, it gives coherence and increases its capacity for the retention of moisture, and thereby lessens the degree of injury producible from drought.

In the districts remote from towns, the course of cultivation on the sandy soils is, 1st, *oats;* 2nd, potatoes, turnips, or beans in drill; 3, wheat, or more frequently barley; 4, clover, &c., mown or for pasture. Potatoes have been grown extensively within the last few years, and have been freer from rot than on any other kind of land, except the mosses. Turnips are consumed either by cattle in the stall, or part in the stall, and part eaten upon the ground by sheep. The folding of sheep on turnips on this kind of land is certainly advantageous. But the violence of the winds on the level surface, and the absence of shelter* in many places, render this branch of farming less profitable than it would become, if proper shelter existed; as it is well known, that the abstraction of heat necessitates an increased consumption of food.

Beans.—It is a common opinion that clay or loamy soils are most favourable for the growth of beans; but crops of beans are frequently grown on the fresh broken-up sandy soils, quite equal in produce to those of the best strong lands; when well manured, the produce will not unfrequently be 50 to 60 bushels per acre.

Wheat is generally sown after beans, but barley most commonly after turnips. There are a few farmers who drill their wheat, but this method of sowing is not general.

Clover and Grass Seeds are sown in May or June, on the wheat or barley, and are either mown twice the following year, or pastured, in some instances by sheep, one, two, or three years. At the end of this period, the artificial grasses have been superseded by those indigenous, and the quality of the pasture is much deteriorated;

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* Very few hedges are to be seen in the lighter sand land districts; sand banks, or as they are termed, "cops," form the boundaries of the enclosures.

the land is again broken up for oats in some districts, and in others for potatoes.

In the vicinity of towns, and in the light land districts intersected by canals, the farming assumes a different character. Very little stock is kept; and the manure required for the crops is purchased, and the produce of all kinds, potatoes, carrots, turnips, grain, hay, straw, &c., is sent to market. In many parts of the parishes of Ormskirk, North Meols, in Tarleton, Burscough, &c., in the Liverpool district, the staple crops are wheat and potatoes; clover and oats, and sometimes barley and beans, occasionally intervening. This frequent repetition of crops of wheat and potatoes, is here not liable to great objection, on account of the large quantity of town dung purchased for the potato crop.

The land in general is preserved clean, and in good condition. From 20 to 25 bushels of wheat, and 10 to 12 tons of potatoes, were grown per acre, until within the last few years, during which not more than half this quantity of marketable potatoes has been obtained.

Wheat, too, it is generally supposed, is not quite so prolific as formerly; abundance of straw is generally secured, but not a proportionate quantity of grain; and this is, indeed, the usual consequence observable in all kinds of grain crops succeeding a green crop, highly manured; marling would be the best antidote to deterioration of the cereal crops on this description of soil.

Carrots are grown extensively in some places, chiefly the red Altringham variety; they are sometimes sown broadcast on land trenched with the spade, and sometimes in drills, and the latter practice, as it affords greater facilities for weeding, is becoming more usually adopted. The produce per acre is in general 20 to 30 tons.

Chicory, also, has been grown in some places, but not to any great extent.

The Ormskirk district is throughout very productive, and yields good crops of both grain and roots. The land in the vicinity of the Leeds and Liverpool canal is much enriched with manure. The rents range from 40s. to 50s. per acre. In some parts there is a greater proportional quantity of grass land, but fully three-fourths of the district within eight or ten miles from Ormskirk is in an arable state. In some of the townships, as Burscough, Scarisbrick, fully nine-tenths of the land is under the plough. On the new red sandstone ridge, in Aughton, there is a greater proportional quantity of grass land; and though ten to twelve miles distant from Liverpool, the land is let at £3 to £3 5s. per acre—some small portions as high as £5. The tithes are 5s. to 8s. per acre, and the rates 9s. The profits of the land, for a considerable number of miles around Liverpool, have been somewhat diminished since the opening of the railways, in consequence of the abundant supply of milk obtained by that means of conveyance, which has tended to diminish the average price of that commodity, and reduced very considerably the number of cows kept in the town for milking purposes; and hay and straw, &c., which formerly commanded a good price, and was sold off the farms from all parts of the surrounding country, are now very difficult to sell, and depreciated considerably in value; and though the rents have remained unchanged, the rate of farming profit is unquestionably diminished. Throughout the greater part of this district, the cultivation is so complete that little remains to be desired in the way of improvement on the generally established practices.

It may probably be thought a severe course of cropping is pursued,—potatoes and wheat being the principal crops,—oats, beans and clover occasionally intervening, and nearly the whole of the produce sold off the farms; but it must be remembered that a large quantity of town dung,* containing all the elements of fertility, is purchased annually, which repairs the exhaustion of the crops. Draining is effected to a considerable extent, and may be advantageously extended. The fields, also, for an arable district, are smaller than is desirable, and the hedges are studded in many places with timber. The average size of the present enclosures is about five or six acres; and if the area was increased to ten acres on the smaller farms, and twenty acres on those of larger extent, and the hedgerow timber removed, the productiveness of the district would be considerably increased. The value of the timber, which might be advantageously removed, would, in many localities, be equivalent to the cost of the removal and re-disposition of the boundaries of the enclosures.

MOSS LANDS.

The moss or peat soils form the second general division of light

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[*] The cost of good horse dung, deposited on the Canal Wharf, in Liverpool, averages from 4s. to 5s. per ton; and the cost of conveyance, by canal, about one half-penny per ton per mile; and on estates through which the canal passes, no canal dues or tonnage is charged for manure. Within the last few years, guano has been extensively used in the potato districts; and, in consequence, a great annual saving has been effected in the expenses of cultivation.

lands. These extensive tracts of land, which, in their original state, have been bogs or morasses, are in Lançashire denominated mosses ; their total extent is estimated at from 20,000 to 26,000 statute acres. The principal of these is Chat moss, near Manchester, containing about 6,000 acres ; Rawcliffe and Pilling mosses, north of the Wyre, west of Garstang; Halsall moss, near Southport; Kirby moss, near Liverpool, and many others, varying in extent from 200 to 1000 acres. The places occupied by these mosses have been undoubtedly at some period fresh-water lakes, and, at a still earlier period, forests; as is evident from the numerous trunks of large trees found imbedded in most of them. Some antiquaries have supposed that these trees, which have evidently grown near the places where at present found, were cut down or uprooted by the Romans ; that the ancient Britons (whom historians state to have sought shelter from these invaders, in the woods and morasses of the northern part of the kingdom, and particularly in Lancashire) might have no place of refuge ; and the formation of the moss is supposed to have commenced after the destruction of the forest. The trees lying scattered over a level, and sometimes basin-shaped surface, in every variety of position, prevented the escape of the water falling on the surface, hence a shallow lake was formed, which in the summer was sufficiently dry for the propagation and growth of aquatic plants. And thus, by the alternate reproduction and decay of a few aquatic grasses and plants of the heath tribe,—the cotton grass, bilberry, crowberry, cranberry, Lancashire asphodel, bogmyrtle, sundew, andromeda-polifolia or marsh cistus, and the grey bog moss, or sphagnum-palustre,—these vast accumulations of vegetable matter have been formed in many places twelve to fifteen feet in depth, and, as in the case of Chat moss, extending over an area of 6,000 acres.

Some mosses differ from the rest chiefly in respect to the strength and state of preservation of the vegetable fibre : some, as Chat moss, are of a spongy and soft consistence, the effect, probably, of greater moisture and a larger relative proportion of aquatic grasses than heath plants ; others are drier, and plants of stronger fibre have predominated, and their decayed remains still preserve a firm and timber-like texture. From this description of moss turves are made, for draining purposes and for fuel.

The usual mode of bringing the turf mosses into cultivation is to dig off from four to five feet of the upper part of the moss, for turf. It is a general opinion that the top surface of the moss is not suited for cultivation, and, unquestionably, the lower strata are more completely decomposed; but the depth at which cultivation commences is most commonly determined by the general level of the surrounding district, and the opportunity of obtaining outfall for the drainage. When the moss is reduced to the necessary level, the surface is skimmed with a breast spade, and the parings collected together into heaps, and burnt, as early in April or May as possible, and the ashes are spread upon the surface. The land is then ploughed, and sown with oats in the usual way, and two or three crops are taken in succession. It has been customary to marl the moss land, after the oat crops, and plant potatoes, to be followed by wheat and oats; but recent experience has shown that marl is prejudicial to the potato crop. On the moss lands that have been marled, the potato crops have been as much diseased as in most other descriptions of soil; while, on the unmarled moss lands, the crops have been good, and preserved in sound condition. In consequence, marling moss land is not at present practised; but when the potato plant becomes restored to its normal state, it is probable marling will again be resorted to, as it greatly increases its productive capabilities for all kinds of grain crops, and is indispensable for the growth of wheat.*

The mode of cultivating the moss lands does not differ essentially from that of the sandy soils above described. All the different crops of grain, roots, and clover, ordinarily cultivated, are grown on the moss lands, with greater or less success. Good crops of oats, forty to fifty bushels per acre, are obtained after paring and burning; but by two or three successive crops the soil is exhausted. Wheat is not grown with so much success. It is seldom a heavy crop, does not yield well to the flail, and is invariably of inferior quality. It is, however, generally sown after potatoes on land that has been marled, or enriched and pulverised by a long process of tillage and frequent application of manure.

The deficiency of mineral ingredients in the soil, and its want of coherence and solidity, is the principal cause of the imperfection of the wheat crop. And these evils are, in a considerable degree, remediable by application of marl, sand, &c., containing aluminous, calcareous, and silicious matter.

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* Since writing the above, I have seen an article in the *Gardeners' Chronicle*, which corresponds with general experience in this county. It is there stated, that out of 679 English returns, there are only three cases in which potatoes planted on unmarled moss land were much diseased; in 182 Scotch returns, no disease; 32 Welsh returns, none; and in 92 Irish cases, two instances of much disease. On Trafford moss, near Manchester, Mr. Forsyth states that part of a bog, reclaimed and marled in 1841, and planted with radical potatoes, and manured with night soil and ashes, at forty tons per acre, produced thirty-two loads of sound, and thirteen loads of diseased potatoes; and an adjoining plot, planted with the same kind of potatoes, unmarled, and manured as before, produced forty-six loads of sound, and only one load of diseased potatoes.

The "throwing out" of the wheat plant by frost, is a consequence of the incoherent texture and the large capacity of all peaty soils for the absorption of water. The water contained in the pores of a spongy soil is expanded, when converted into ice, and this expansion resisted laterally and below developes itself in upraising the surface soil. The frost ceases, and the soil contracts to its primitive dimensions, and the wheat plants are left with the roots exposed, and deficiency of plant is the result. In consequence of this liability to injury, many farmers do not sow their wheat in the winter until after the usual period when severe frosts are expected to occur. Some were busily employed in seeding operations when I passed over the mosses in February, 1849. The general period of sowing is, however, in November and December, after the raising of the potato crop. Wheat is generally sown on ridges, broad-cast, three to four yards wide. One peculiarity I have noticed in some places: the ground is first harrowed flat; the seed is then sown with the hand, broad-cast, and is covered by the common plough turning over the subsoil to the depth of one and a half or two inches. This practice has originated, probably, in consequence of the finely pulverised state of the soil after potato getting, and the absence of clods, rendering it difficult to harrow in the seed to a sufficient depth. The object would be attained by use of the drill, at one quarter the expense of time and labour. The produce of wheat on the moss lands is from ten to eighteen bushels per acre. Good crops of beans, clover, and turnips are raised upon the moss lands; but it is the superiority of the potato crop which has given the moss soils their chief value and importance. At present the moss lands only can be relied on for the production of this indispensable root.

It is on these soils, and some of the sandy loams, that the earliest crops of potatoes sent to market are grown. No labour is spared by the growers to forward the maturity of the crop, and potatoes grown in the open air are frequently sent to market in May. In February, the sets are spread upon floors in a warm apartment, for the purpose of sprouting. The land is usually dug, laid in ridges two to three yards wide, and manure trenched in.* At the end of March, or early in April, the potato sprouts have become one or two inches in length, and the sets are carefully deposited in holes six inches asunder, made in rows, twelve to fifteen inches apart across the ridges. The holes are filled up by harrowing the surface with a common garden rake. The plants soon appear above the ground, and are sometimes covered during the night with straw, &c., to protect them from the frost. The weight of a crop of early potatoes is not of so much importance as the price, which, if the crop be sufficiently early, fully compensates for deficiency of quantity. Early crops of kemp or radical potatoes, matured in August, generally average from three to four tons per acre.

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* Swede turnips are transplanted upon the early potato ground, and if got in in June or July, a good crop is generally obtained.

For crops of late potatoes, the land is prepared by the plough; being skim-ploughed in autumn, and cross-ploughed in the spring, or trench-ploughed. The land is formed into drills with the common plough, or, in the improved districts, by the ridging-plough; and ten to twenty tons of horse dung, or thirty to forty tons of night soil and ashes, or 3cwts. to 4cwts. of guano, are applied per acre. The "sets" are deposited on the manure about nine inches apart, and covered by reversal of the ridges. As soon as the plants appear at the surface, the scarifier is passed between the drills, which are again immediately earthed up by the plough. A few weeks afterwards, the potatoes are hand-weeded, and this is the final operation until the "getting-up," which formerly took place in November, but recently five or six weeks before the usual time. The potatoes are stored in long heaps, having a triangular section, imbedded in straw and covered with soil. Various methods of storing have been lately resorted to—the potato heaps, or "hogs," have been ventilated. Some have spread them on the floors of outbuildings; and a kind of hut has been constructed, in some instances, three to four feet wide, six to seven feet high, and of variable length, the sides being an open framework or wattling, lined with straw; the roof thatched. This plan admits a free circulation of air, and the escape of gases produced by fermentation. But I am not aware that any of these devices have been of much service in arresting or preventing the progress of decay. The produce of the potato crops well manured on these soils, was formerly ten to twelve tons per acre; but latterly, the decay of the tops before the tubers have attained their full size, has considerably diminished the weight per acre. The average produce of the last three years has not been more than six to seven tons. Considerable quantities of wild moss land, formerly not thought worth the expense of cultivation, in consequence of the comparatively healthy condition of the potato plant on the peaty soils, and the high prices, have been appropriated for potato growing. It is dug, or trench-ploughed,* and manured with night-soil or guano, and the first year's crop has frequently defrayed the whole expense of reclamation and culture; and there is now a fair prospect that the uncultivated morasses in Lancashire, in a very short time, will be rendered productive.

Whilst on most other descriptions of soil, and on strong lands in particular, farmers are struggling with unexampled difficulties,—with a high scale of rents, tithes and taxation, a soil exhausted by frequent cropping, by the entire loss of their potato crops, and unpropitious seasons; the farmers of the moss lands have been comparatively free from these aggravated evils. The potato crops have been cultivated with success, and sold at prices which have left a large profit to the producers; and the farmers of the moss lands are in comfortable circumstances, and in many instances have realized a considerable amount of money.†

One great advantage of the light soils in general, and the moss soils in particular, is the facility of working them. Not unfrequently the ploughing is performed by a single horse, though two is the usual number; but at the ordinary depths, it is very light work for two horses. They will plough one-and-a-quarter acres per day with greater ease than three-quarters of an acre on the strong lands.

The strong lands require two men and two horses, for the cultivation on a four-course system of forty acres; but two men and two horses would cultivate, for the same crops, seventy acres of moss land.

The cost per acre of labour on the strong soils would be £3 3s., and on light soils, *similarly cropped*, £1 16s. per acre; but the cultivation of potatoes on the light lands necessitates a much greater expenditure of labour. The following statements shew their comparative advantages, according to the last year's prices:—

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* Pattens, consisting of a piece of board, are affixed to the feet of horses used in cultivating many of the moss lands, to prevent the sinking of their feet; and when accustomed to them, they are no impediment to their efficient working.

† Potatoes were grown extensively in Lancashire when only known as a garden vegetable in other parts of the kingdom. It is stated, that a vessel laden with potatoes was wrecked upon the Lancashire coast, and the damaged cargo, being sold at a low price, was purchased by the farmers, and a large extent of land was the following year planted with this crop. The potatoes grown in Lancashire are superior in flavour to those grown in the southern counties; and they have constituted the chief article of subsistence of the working classes throughout the county.

	Crops.	*4 yrs' expcs.*			*4 yrs' prdce.*			*Profit p an.*		
		£.	s.	d.	£.	s.	d.	£.	s.	d.
Light Sandy Loam........	Potatoes, Wheat, Oats, Clover	27	4	0	42	10	0	3	16	6
Moss Soil	Do. do.	22	12	0	45	5	9	5	13	3
									Loss	
Clayey Loam..............	Beans, Wheat, Clover, Oats...	26	10	0	25	19	6	0	2	4½

Another advantage of the light lands, is that of being accessible in almost all states of the weather; after a fall of rain, the retentive soils will be a week or ten days before they can be advantageously entered with the plough; and the farmer has often the mortification of seeing his horses remain idle in the stable, and is sometimes unable to sow his crops in due season, while his neighbour, on the light land, pursues his work, uninterrupted by the casualties to which he is exposed.

Dairy Farms.—There is a large extent of country, chiefly in the northern division, of which the Fylde district, lying between the Lancaster and Preston Railway and the sea coast, may be taken as the representative, where a system of mixed arable and dairy farming is carried on. The soil in this district is of various character, but consists chiefly of clayey loam, with some portions of sandy, moss, and alluvial lands. The size of the farms range from 50 to 200 acres in extent. In most townships, there is one farm larger than the rest, designated "The Hall Farm," as Layton hall, in Layton-with-Warbreck; Westby hall, in the township of Westby; Eccleston hall, in Eccleston township, &c., which, in former times, was occupied by the resident proprietor of the district, and cultivated by his immediate dependants. These farms are in general from 300 to 500 acres in extent, and there are a few others in some localities of nearly equal size. Of these dairy farms, a considerable proportion (about two-thirds) of the farm is kept in permanent grass, as meadow and pasture. The cattle are kept in summer in the pasture land, and in winter in the stall, and fed on hay, straw, turnips, &c. The cows usually calve in the spring months, between March and May. In the latter month, cheese-making generally commences, and is continued until November. The average produce of a cow in one season is 3cwt. of cheese, of good quality, and 30lbs. to 40lbs. of butter. A considerable number of young cattle is annually reared. If the milk cows prove barren, they are sometimes fed for the butcher, but generally sold to cattle dealers, who send them into Yorkshire, or the midland counties.

The produce of a cheese farm of 100 acres, cultivated in the usual way, is as follows:—

PRODUCE.

70 acres of grass land.	£		£	s.
54 cwt. cheese, produce of 18 cows, at 50s.	135			
720 lbs. of butter, „ at 1s. per lb.	36			
10 young cattle £30, colt £20.	50		221	0
30 acres of arable land.	**£**	**s.**		
5 acres of oats	25	0		
2 acres of potatoes, 10 tons, at £5	50	0		
3 „ of turnips and 5 fallow	0	0		
5 „ of wheat	36	15		
5 „ of barley	32	10		
5 „ of clover hay sold	25	0	169	5
Gross produce			£390	5

EXPENSES.

	£	s.	£	s.
Labour—30 arable acres	94	10		
„ 70 grass	87	10		
	182	0		
Rent 30s., tithes 3s., taxes 5s.; £1 18s. per acre.	190	0	372	0
Interest of capital, superintendence, sundry house expenses, &c., and profit			£18	5

ARABLE AND GRAZING FARMS.

There is another class of farms, on which a mixed system of husbandry is practised,—distinguished from the dairy farms by the absence or very small proportion of permanent grass land, the extended growth of artificial grasses and turnips, and the feeding of cattle and sheep. The staple products of these farms are butchers' meat and grain. This system of husbandry is not practised by the native farmers, and has not been long introduced. The chief practitioners are a few agricultural gentlemen, and several Scotch farmers, who have been located in Lancashire within the last six years, and a few other persons. The cropping is entirely artificial; and nearly the whole of the farms are kept under arable cultivation, and a regular alternation of grain, root, and grass crops adhered to.

These farms are larger than the generality of the farms in Lancashire;—from 200 to 400 acres in extent.

The first operations of the occupiers have been thorough draining, with tiles, the whole of their farm, eradicating the hedgerows, filling up the ditches of the numerous small inclosures, and redisposing and enlarging them. New farm buildings have been erected by the owners, on a scale commensurate with the size of the farms, and suited to the system of farming intended to be pursued.

with commodious dwelling-houses, adapted to the status of the new occupiers.

Difference of opinion exists as to the adaptation of the turnip husbandry to the climate and circumstances of Lancashire. It is, as above stated, of recent introduction, and ought, therefore, to be viewed as an experiment not yet completed. But whether the result be advantageous or the reverse, the experiment will not have been made imperfectly or incompletely, in consequence of illiberality on the part of the landowners, or want of capital, skill, and enterprise of the tenants.

The following statement will show the average produce of a farm of 100 acres of land, of similar quality to that of the dairy farm above described:—

			£	s.
20	acres of	oats	100	0
10	„	beans	80	0
10	„	turnips		
10	„	wheat	73	10
10	„	barley	65	0
20	„	clover } pastured	140	0
20	„	do.		
100				
		Improvement of 20 head of cattle by consumption of turnips, straw, &c., £3 10s. per head	70	0
		Value of gross produce	£528	10
		The cost of production, as stated above, is £36 9s. 6d., including manure for a six years' course: without manure £28 9s. 6d., or £4 15s. per acre yearly: 100 acres £475	510	0
		Add for cowman and shepherd 35		
		Interest of capital, house expenses, superintendence and profit	£18	10

OPERATIONS OF HUSBANDRY.

Having described the various systems of farming, viz.:—the milk farms, the exclusively arable or potato farms, and the mixed husbandry of the dairy and stock farms, it now remains to detail the practical operations of husbandry and mode of preparing the ground for the crops.

The mode of preparing the ground for the oat crop is to plough the ley in February or March, from three to four inches deep, reversing the ridges: the oats are then sown, broad cast, about three bushels per acre, and the ridges harrowed.

After harvest, generally in November or December, the oat stubble is skimmed with a common plough, to the depth of two inches, for the purpose of securing the decomposition of the vegetable matter, weeds, &c., and levelling the ridges; and in this state it remains until the spring; when, if intended for beans, sown broad cast, it is ploughed at once into ridges: but if for drill crop, cross-ploughed, harrowed, &c., and then formed into drills.* As soon as the plants appear above the surface, the horse hoe is set to work to pare the sides of the drills and destroy the weeds, &c. The common or the moulding plough follows in a few days, and "lays up" the ridges,—*i.e.*, replaces the soil worked down by the scarifier again upon the drills. These operations are generally succeeded by hand-weeding, at least once, often several times, particularly if the crop be potatoes. The drill crop is followed by wheat, sown on ridges, three to four yards wide, in November; or if the drill crop be turnips, sometimes by barley and oats.

The practices of the modern school differ in some respects from the general practice. They plough deeper, and instead of skimming the surface of a stubble after harvest, or as it is called, "throwing down the ridges," and again ploughing deeper in the same direction in the spring, burying the original furrows, the modern farmers, during the winter, plough at once to the full depth, and in the spring, cross plough, or work it transversely with a cultivator or harrow. In the mode of forming the ridges, the modern methods also differ from the usual practice of Lancashire. Wheat ridges are usually made three to four yards in width, and in some of the more tenacious lands, in the southern division, they do not exceed four feet. The centre of the ridge is generally raised about nine inches above the level of the furrow, and the water falling upon the ridge falls freely into it. After harrowing in the seed, the furrow is opened with the common plough, and "grips," *i.e.*, open drains formed across the direction of the ridges, for the reception of the water from the furrows, and conveying it to the ditches.

But the practitioners of the new husbandry, whose land is drained, make the wheat ridges five or six yards wide, and lay them as flat as possible; the land is often harrowed crosswise, and there is neither waterfurrowing nor gripping, as is the ordinary practice.

I have inspected a very great extent of wheat land during the present year, in various parts of Lancashire, and have invariably observed, on strong soils, that where the land is laid flat, the plant is backward, and has a starved appearance; and as constantly on the three yards ridges, it is vigorous and promising. I have tried the flat method, on land thoroughly drained, five yards apart, but never, on strong lands, obtained a good wheat crop. In Lancashire, surface draining is indispensable on the strrong soils; and underground draining alone will not carry off the water, and keep the land, in winter, sufficiently dry for the wheat plant.

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* Drills.— These are denominated drills, in accordance with the customary phraseology, though no drill is employed. Ridgelets would be a more appropriate term, to distinguish them from ridges, on which grain is usually sown.

With respect to the management of grass lands, the usual practice of the best farmers is to top-dress the meadow land with farm-yard dung during the winter, every two or three years, at the rate of about ten tons per acre; the first crop of grass is made into hay, and the after grass, which is usually abundant in Lancashire, is depastured by cattle. In a few localities, irrigation supplies the place of manure, but not to any great extent.

On the pasture land in general, but little care or labour is bestowed. A customary mode of draining is to "waterfurrow" the field in winter, *i. e.*, to turn up with the plough a single furrow along the division line of the ridges, forming a surface drainage. The forings are then collected into heaps, and during the ensuing summer mixed with quick-lime, soapers' waste, gas-lime, or farm-yard dung—a layer of manure and a layer of soil alternately. The heaps, after lying in this state several months, are then "turned," and the manure and soil thoroughly mixed and comminuted; and in the spring, the compost is spread upon the field. This method of drainage, &c., is sometimes, though less frequently, applied to meadow land. The introduction of underground drainage, which is now becoming general throughout the county, will, it is probable, render this practice, at no distant period, obsolete.

GENERAL AGRICULTURAL ECONOMY.

It now remains to elucidate the principles of farming economy of the county,—which is divisible into three kinds: first, economy of labour; second, territorial economy; and third, moral economy, or the relation of the several agricultural classes to each other, and to the community.

Economy of Labour.—Manual Labour.—The agricultural labour on the majority of Lancashire farms is performed by servants, who live in the house, and are hired by the year. The wages of men servants range from £10 to £12 a-year; though there are a few who act in the capacity of bailiff, or are in other respects trustworthy and attentive, who receive £15 and £16 yearly. The wages of ploughboys, similarly provided for, is £5 to £8 yearly. Female servants, £6 to £8. The wife or daughter of the farmer is generally the dairymaid; but where a hired dairymaid is kept, the wages are from £9 to £10. The time of hiring and changing of servants is February second; but there are not fairs for this purpose, as in Westmorland and Cumberland.

Besides the regular farm servants, many of the larger farmers employ one or more day labourers, whose wages are 1s. to 1s. 4d. per day, including food, and 1s. 6d. to 2s. without it. During the hay and corn harvest, the wages are somewhat higher, and the families of the labourers are all at this period called into requisition. Mowers generally obtain from 2s. 8d. to 3s. per day, and reapers 2s. to 2s. 6d. Excepting during harvest, a great number of the smaller farmers employ no day-labourers, and many no farm servants, the work of the farm being done by the farmer and his family.

On the farms where the "new husbandry" is practised, the labourers are engaged by the day or week, without any other kind of provision than their wages, which in general range somewhat higher than the average of the locality, and a greater number of men are kept in employment. The great expenditure which has recently been made in draining, eradication, and re-disposition of fences, has conferred great benefits on the agricultural labourer; and, had it not been for the extraordinary impetus given to agricultural improvement, the condition of the working men, though sufficiently bad, would have been truly deplorable. The numerous hand-loom weavers resident in the agricultural districts vacate the loom for the spade and sickle during the summer season,—in potato planting and "getting up," hay-making and reaping, but return to the loom in winter, when the demand for their labour ceases. The working men of Lancashire are second to none in the exertion they will undergo, and, when properly treated, are solicitoas for their employer's interest. For a good day's wages they will always do a good day's work. The characteristics of the Lancashire "navvy" are well known in many parts of the country, as well as on the continent. He is a type of the working men in general: strong and determined in purpose, and can undergo great physical exertion; thoughtful and industrious, but liable to occasional excesses, and, when irritated with drink or passion, boisterous, overbearing, and pugnacious; without education, but an expert workman in that to which he has been accustomed, and capable of adapting himself with facility to any new undertaking; possessing a good natural understanding, but not the capacity or qualifications which confer intellectual superiority.

IMPLEMENTS, &c.—The only implements in general use are ploughs, harrows, scarifiers, and winnowing machines. The greater part of the ploughs have wooden frames, and are the manufacture of the village blacksmiths; of clumsy appearance, though not unusually heavy; but incapable ot executing their work in the masterly style and finish of the ploughs of professional makers—of Sleight, of Edinburgh; or Ransomes, or Howard, &c. There are a few iron ploughs made in Lancashire, but none of them will bear comparison with those of the above-named makers. I have seen two fifty-six pound weights placed upon one of the wooden-framed ploughs of Lancashire, while ploughing an indurated soil, while a plough made by Sleight, of Edinburgh, entered the soil without difficulty, and maintained a uniform depth. The Scotch ploughs are, in general, preferred on the strong soils, and there are a considerable number of them in different parts of Lancashire.

The ploughs are the only implements among the multifarious productions of modern ingenuity, for facilitating the operations of agriculture, which have been generally approved of. Notwithstanding the great amount of mechanical talent in Lancashire, it is only within the last few years that ironfounders and mechanics have turned their attention to agricultural machines. The village wright and blacksmith had the entire monopoly of this branch of business.

THRASHING MACHINES have been used a considerable period on some of the larger farms, and some of these old machines are still in use; but until the exhibitions of the Royal Agricultural Society of England brought more portable and less expensive machines before the public, a very small proportion of the grain of Lancashire was thrashed by any machinery but the flail. Crosskill's four-horse machine was one of the first introduced, several of these machines being brought into the Fylde district shortly after the meeting of the Royal Agricultural Society at Liverpool, in 1841. The moderate price, (forty guineas,) and the efficient performance of these machines, produced an increased demand; and within the last few years, a considerable number of thrashing machines have been manufactured within the county, of two, three, and four-horse power, adapted to the smaller classes of farms. On several of the large farms in the Fylde, as also at Bold Hall, near Liverpool, and several other places, there are very efficient machines, driven by stationary steam-engines;

but, notwithstanding the great amount of steam power employed in Lancashire, a "long chimney" adjoining a farmery was six years ago a novelty. There are several of Garrett's bolting machines within the county, which obviate the objection made to the ordinary machines, of breaking the straw, the fundamental objection of the adherents of the flail. Of clodcrushers, cultivators, drills, and various other machines of recent invention, a considerable number are in use in Lancashire, but are chiefly confined to the demesne farms of land-owners, and to the "book farmers." It is, however, the cost of these implements which is the chief impediment to their extended use; some of them are calculated to economize labour on the freer soils, and the clodcrushers render the stronger soils capable of being advantageously worked for turnips, which, before their introduction, was difficult, if not impracticable; and the more general adoption of drilling the grain crops, would in the light land districts be attended with considerable advantage.

Ploughing.—There is another point in the economy of labour deserving of notice, viz., the mode of yoking horses to the plough. The universal practice in Lancashire, ten years ago, was to attach the horses "in line," one before another; the traces of the first horse being attached to the hames of the following one, and those of the last horse to the plough. Three, and often four horses, were thus yoked together on the heavy, and two and three on the lighter soils. It was objected to this practice that a greater number of horses was kept than necessary; that two horses yoked abreast would do, with equal ease, the work of the greater number usually employed; and that the drivers might be dispensed with. Premiums were offered by the agricultural societies for the best "double ploughing;" and thus, ocular evidence being given of its practicability, many have been induced to adopt it; but the majority of farmers still adhere to the ancient method of yoking "in line."

Like many of the subjects that have been brought before the collective wisdom of the agricultural societies, it was not recommended on its merits, but discussed as a foregone conclusion, which might have been adopted from partial views, or the *appearance* of promised advantage. But if the newly-proposed method was not properly represented, neither were the objections urged against it very tenable or convincing. The principal was, that the treading of the unploughed ground by the horses was prejudicial to its productiveness, which was avoided by the horses walking in the furrow. But strong land, which alone is liable to be thus injured, can not be advantageously ploughed in a wet state. Besides, it is questionable whether there is not equally as much treading, by the deviation of the horses from the line of draught, in the one case as in the other : and if, by alteration of the method of yoking, two horses and one man can do the work of three horses and two men, there is sufficient reason for the change; Those who have tried, well know that this can be done ; and as the modus operandi may be interesting to some who are in doubt on the subject, the following explanation may not be misplaced.

Theoretically speaking, there is no mechanical power gained by yoking horses abreast. Two horses properly attached, "in line," to the plough, will exert as much effective force upon it, at a dead pull, as the same two horses yoked abreast. There is no gain of power by the method of yoking. It is in the *circumstances* that the advantage lies. Three or four horses working together do not exert themselves uniformly. Some hang back, while others are exerting their strength. Their natural paces also differ considerably : thus the fast horse will be wasting his strength in dragging forward his more tardy followers, and if placed in the rear, he will frequently have to do all the work himself. Now supposing the traces of the leading horses to be slackened for a moment, and the driver seeing this, urges them onward, and they exert a pull,—by the time the chains are stretched, and before any power is exerted on the plough, by the inclination forward of the body of the horse, his footing is gone, and he must make another step before he can exert any effective force. Often, also, the springing forward of the leading horses pulls away the collar from the neck of the latter, and his strength is not for the moment available. Hence it may be inferred that under these circumstances not more than two of the horses will, at any one time, be exerting all their effective force upon the plough; and it is apparent how two horses yoked abreast, and exempted from these irregularities, will be as efficient as three or four yoked singly.

TERRITORIAL ECONOMY. — WASTE LANDS. — The extent of waste lands and woodlands are stated, in 1830, to be 400,000 acres. I am inclined to think that this extent is greatly exaggerated, excepting it is intended to comprise the bogs, rivers, lakes, sites of towns, &c., as well as uncultivated lands. And even in that case it appears to me to exceed the truth. The principal portion of the uncultivated lands are on the high moory tracts, among the granite hills on the east side of the county, and the limestone hills on the north,—the sand hills and out-marshes along the sea coast and principal rivers, and the mosses lying in different localities, as previously described.

In the early part of the present century a very large extent of land, consisting of moors, marshy and moss land, was enclosed and brought into tillage,—some of which were authorized by act of parliament, and others by individual proprietors. The great diminution of agricultural profit in 1815, speedily checked, for a time, these enterprizes; but, compared with the extent of previous undertakings, since that period, but little has been done; the cultivation of land was abandoned for more profitable adventures in commerce and manufactures. The advance of cultivation has, however slowly, kept steadily encroaching on the waste. The precipitous granite hills on the east side of the county were called into requisition by the extension of manufactures and the increase of population. The old cleared lands preserved their former value, and portions of heathy moor were successively allotted to the domain of cultivation

The moss lands, too, in many places have been gradually brought within the range of cultivation, by the progress of turf digging; and the sandy wastes on the sea coast reclaimed from their native barrenness. Since 1835, the spirit of agricultural enterprize has been revivified, and the land began to share in the attention before bestowed exclusively on the loom. The capital accumulated in commercial enterprize began to flow back upon the soil, and some degree of the commercial spirit began to animate the stagnating genius of agricultural society. Many large estates, as also many small ones, were purchased with capital realized in trade, and land advanced in value.

CROSTON DRAINAGE.—Among the earliest efforts made for the reclamation of waste lands was the Croston drainage, for which an act of parliament was obtained. The object of this act was to enable commissioners to be appointed, to embank, divert, deepen, &c., the rivers Yarrow, Lostock, and Douglas, and to form suitable sluices, &c., so as to free an extensive fertile tract of alluvial land from inundation. The work was completed; but by means of an extravagant expenditure. The fall obtained for the water is so small, that the main ditches, &c., require scouring annually, and consequently expense is annually entailed on the proprietors of the land benefitted by the drainage. The sum at present payable annually for these expenses, and the liquidation of the debt, &c., is, in some instances, 10s. per acre.

LYTHAM DRAINAGE.—About 1839, a large open drain, ten feet deep, and of proportional width, was made through a large tract of level moss land, near Lytham, the property of Thomas Clifton, Esq. Embankments were formed along the sides, by the earth thrown out of the drain; and the land before subject to inundation, is now effectually freed from this contingency, and has advanced considerably in value. The length of the drain, including its branches, is three to four miles; and including bridges, tidegates, &c., was effected at a moderate cost, from £2,000 to £3,000.

One circumstance appears to have been overlooked in the plan of this drainage. At a small additional cost, it might have been made a navigable canal, accessible by boats from the Ribble, into which the waters of the drain are discharged; and manure could thus have been conveyed from Preston and Liverpool, &c., into the heart of Mr. Clifton's estates; and the produce, as potatoes, turnips, &c., re-exported. A large proportion of the land in the vicinity of the drain is eminently adapted for potato growing; and had the drain been made navigable, a system of cultivation similar to that of the potato growing districts in the south-west part of the county, would, in process of time, have been adopted, and the value of the land been considerably increased.

SOWERBY DRAINAGE.—A considerable extent of valuabe land in Sowerby is subject to inundation, and not unfrequently in the summer, the whole of the standing crops have been destroyed. Several attempts have been made to induce the landowners to agree to a plan for diverting the river Brock, &c., but without effect. The Earl of Derby is the principal proprietor; and works are now in progress, on the part of the inundated district in his estates, to afford a more perfect drainage.

MARTON MERE.—This is an extensive tract of sand and moss land, situate in the parish of North Meols, not far from Southport. It was formerly a fresh-water lake, but is now only partially covered with water in the winter season. A large sluice, or drain, passes through this tract of land, which was formed in the early part of the last century. It commences at the village of Rufford, and discharges itself into the Ribble at a village called Crossens, about half way between Southport and Hesketh Bank, and is about six miles in length. This is one of the earliest examples of agricultural enterprise in the county of Lancaster; and is also one of the most important, whether considered in respect to the difficulties to be overcome, the extent of the undertaking, or the benefits which its successful issue would produce. As its history is not generally known to the agricultural classes, the following account of the improvements effected may not be misplaced, particularly as an attempt is now being made to give the final stroke, in the completion of this great undertaking.

The account of the improvements was communicated by Thomas Eccleston, Esq., of Scarisbrick Hall, to the Society for the Encouragement of Arts and Manufactures, and was published in their transactions, in 1786. Mr. Eccleston obtained the gold medal of the society, for his exertions and improvements in the drainage and cultivation of the Mere, and gives the following account of the history of the undertaking:—

"About 1692, Mr. Fleetwood, of Bank Hall, proposed to drain Marton Mere—an extensive fresh water lake of 3,632 statute acres—on leases being granted him for three lives and thirty-one years. The operations were commenced by forming a canal to carry off the water into the Ribble, near North Meols, where flood-gates were placed, and a considerable extent of land brougth into cultivation."* In 1755—five years after Mr. Fleetwood's lease expired—the flood-gates were washed down, and the land fell in value to a few shillings an acre. In April, 1783, the flood-gates were again erected, together with stop-gates further up the drains, and the sluice carried up to the mere, by Mr. Eccleston. "The ditches were opened, a draining or gripping plough procured, worked by eight or ten horses, which cut, in one day, eight miles of drains, twenty inches wide and thirteen inches deep, and which, if done by hand, would have cost upwards of £7. A few acres were ploughed in 1784; but in 1785, 200 acres were brought into cultivation; and on land previously let at 4s. per acre, barley was sold at £11 17s. 6d., and oats at £10 17s. 6d per acre." Mr. Eccleston died in 1809, and in 1813 the sea-gates were again carried away; but the "stop-gates," placed higher up the drain, prevented the inundation of the sea. Mr. Scarisbrick called in Mr. Morris to effect the reparation of the drainage works, who substituted cast-iron cylinders, with valve lids, in place of the previous flood-gates. These, however, are sometimes choked up with sand;

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* In North Meols Church there is a monument to Mr. Fleetwood, bearing a Latin inscription, which, translated, is as follows:—"He wished his remains to be buried here, because he had drained and made into solid land the great Martinensian Marsh, having taken off the water, by a fosse, to the neighbouring sea. . . . . He executed this work, which our ancestors durst not attempt, and which posterity will scarcely believe, at a very great expense, and with a view to the public good—not his own."

and plans have been made for a new drain, to divert part of the water to another outlet. The cost has been estimated at £5,000; and in 1819, Mr. Scarisbrick proposed to accomplish the work, on condition of having the land liable to inundation six years rent free, and agreeing to keep the works in repair ten years after the expiration of his lease; but the landowners did not concur in the plan, and it was not executed. About 1838, another plan was made, but nothing has been done until the present year, when Sir T. G. Hesketh, the proprietor of a considerable proportion of the land still unreclaimed, commenced the draining, with tiles, of the more elevated portion, the eradication of the gorse, &c., with a view to the ultimate reclamation of the whole waste on his estate.

There is very little fall in the sluice, and the water in winter is level with the surface of the land, which in some places is overflowed; and it is in contemplation to raise the banks on the side of the sluice, and to fix one or more steam engines with pumping apparatus, to raise the water that accumulates in the lower parts over the bank into the sluice. If this can be successfully accomplished, which there seems no reason to doubt, an extensive tract of land will be brought into cultivation.

CHAT MOSS.—The most extensive tract of moss land in the county is situated in the parish of Eccles, not far from Manchester, and is intersected by the Liverpool and Manchester Railway.

The first attempt at cultivation of this extensive moss, on an extensive scale, was made in 1805, by William Roscoe, Esq., of Liverpool, who commenced his operations on 2,000 acres of the south east portion.* Parallel roads were laid out, running north and south, across the moss, and others at right angles to these, thus apportioning the moss into square or rectangular divisions.

Ditches were formed on the sides of the roads; and others—made to intersect the moss for the purpose of drainage—formed the boundary of the enclosures. Mr. Roscoe's plans, however, do not appear to have been either profitable to himself, or satisfactory to the public.†

In 1821, Mr. E. Baines purchased 1,100 acres of Mr. Roscoe's land, and commenced improvements on a plot of 200 acres. Mr. Evans and Mr. Reid are distinguished, also, among the early improvers of Chat moss. The improvements of these gentlemen consisted in draining with sods, six or seven yards apart, and marling. A railway was laid in 1833, at the joint expense of Messrs. Baines and Evans and Co., on the side of one of the roads; and another, parallel to the former, and about half a mile distant, was subsequently laid. These railways run north and south, and join the Manchester and Liverpool Railway on the one side of the moss, and the Mersey and Irwell Canal on the other. The railways were laid for the purpose of conveying marl from the southern side of the moss, and manure from the banks of the canal; and a moveable railway was used, to convey the waggons from the main line to any part of the estate. The quantity of marl applied was 80 to 100 tons per acre, and manure—night-soil from Manchester, which is the best manure for moss lands—was applied at forty tons per acre. Under this management, the land was soon brought into a superior state of cultivation, and excellent crops of clover, oats, wheat and potatoes were grown,—this latter crop in a single year defraying frequently a large proportion of the cost of reclamation. But with the exception of the improvements effected by the gentlemen above-named, until the present year, no systematic efforts have been made to reclaim this extensive waste: and at the present moment, upwards of 4,000 acres have not been entered by the plough. And this tract of land, situate within six miles of Manchester,—bounded on the north and south by navigable canals, and intersected by the Manchester and Liverpool Railway, in one of the most populous and enterprising districts of England, presenting no obstacle to effectual draining, with every facility for procuring manure and disposition of the produce—with all its advantages and capabilities, remains in 1849 an uncultivated morass. The adventitious value given to moss lands, in consequence of the potato disease, has induced some of the proprietors to commence its improvement. Among the principal of these is Colonel Ross, who is owner of a considerable extent of the western portion of the moss, south of the railway. The operations now in progress on this portion of the moss are the cutting a main drain, running east and west, nearly parallel with the railway, and a few hundred yards distant from it; and smaller drains, or ditches, to form the boundaries of inclosures, at right angles to the main drain. The drains are not cut at once to their full depth, as this would cause the shifting of the whole moss, but are deepened gradually: sufficient time being allowed for the withdrawal of the water from the upper stratum, before the deepening is proceeded with, and to allow the gradual subsidence and consolidation of the moss. The drainage will very soon be sufficiently advanced to admit of cultivation being proceeded with. Several plots have been already let on lease for twenty-one years, at 10s. per acre rent; and there is sufficient ground for the presumption, that in a few years this extensive waste will be made to yield its increase, and add another example to the numerous triumphs of art and industry.

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* A Mr. Wakefield, of Liverpool, is mentioned, in 1794, as one of the earliest improvers of moss land, in Lancashire; but I am not aware which of the mosses, or what extent of them were subjected to his operations.

† Mr. Roscoe appears to have been too liberal-minded and theoretical for this kind of undertaking. Among the various contrivances which were made for economizing labour on this moss, was a windmill plough! which was planned for Mr. Roscoe, constructed and tried,—with what success need not be told.

A considerable extent of moss land, in different parts of Lancashire, has recently been brought into cultivation; among which may be mentioned, Rawcliffe and Pilling mosses, (the former the property of T. R. W. Ffrance, Esq., of Rawcliffe Hall, who ranks amongst the earliest improvers of moss land, and is one of the most enterprising and intelligent agricultural gentlemen in the county), Kirby moss, Tarleton moss, &c., &c., on all of which the radical means of improvement before mentioned—draining, marling, paring, or burning, &c.,—have been exercised.

Besides the mosses situate in the lower part of the county, there are numerous others of considerable extent upon the granite hills of Anglezarke, Rivington, Blackrod, &c., in Bolton parish, and Turton, Bleasdale, and other places. Many of these might be easily reclaimed; but, in consequence of the elevation of the land. the advantages of their cultivation is somewhat uncertain. In the less elevated situations, and on the southern sides of the hills, there are many that would amply repay the cost of reclamation.

Moor Lands.—On the greater part of the moor lands, corn crops cannot be cultivated with advantage, as the elevation of the ground prevents their ripening; but, if they were cleared of heath and limed—for the procuration of which the East Lancashire Railway will now afford facilities—a considerable proportion might be made available for pasturage in the summer months, and made worth ten to twelve shillings per acre.

The extent of waste and woodland in Lancashire, in 1835, according to parliamentary documents, is stated at 371,840 acres; the extent in tillage, 450,000; and, in grass, 350,000. In 1795, the uncultivated land is estimated as follows:—mosses, 26,500 acres; moors, marshes, and commons, 508,500 acres; total extent of waste lands, 535,000 acres. Hence, if these figures can be relied on, in the forty years from 1795 to 1835, 163,160 acres were brought into cultivation.

Draining.—It remains now to consider the improvements effected on the old cultivated lands, and of these underground drainage first claims attention. Draining was practised in Lancashire in the early part of the present century, and the method differed only from the modern practice in the kind of materials used for the drain, which was a kind of wedge-drain, the sod from the surface forming the cover. I have witnessed the efficacy of these drains upwards of twenty years after their formation.

This mode of draining being practised on the mosses, led to the cutting of turf into a wedge shape, which were hardened in the sun. The wedge drains can only be made in land where the subsoil is clay or tenacious marl, as in any subsoil of a free character the drain would not stand, but become choked up by the crumbling and falling in of the sides. But where the turf can be wedged in a clayey substratum, an economical and efficient drain is made by the wedge-shaped turves; and this method of draining is extensively practised in the strong lands surrounding the mosses where turves are dug. Stones have also been extensively used for drainage purposes, but when required to be carted more than two or three miles, this method of draining becomes very expensive, and since the introduction of tiles, has not been extensively practised. Drainage tiles were made in Lancashire about 1820, but were not extensively used until 1840, and at that time they were universally moulded by hand into horse-shoe shape, and burnt along with bricks, in open kilns, and sold at 25s. to 30s. per 1,000.

The great waste of fuel by this mode of burning induced several of the more enterprising landowners to construct kilns for this purpose. One of the earliest built tile-kilns is situate on the estates of Earl Sefton, at Tarbock, near Liverpool. It is of a circular form, and was erected in 1840 or 1841. Since that period upwards of thirty tileries have been established in Lancashire. There are thirty-one tile-kilnes now in operation, and several others will be soon commenced. They are generally built of an oblong form, with arched top. Hand tile machines and clay-mills worked by horse or steam power, are now used at the tile manufactories. Twenty of these manufactories are upon the estates of the nobility and gentry, and supply tiles to the tenantry, among the principal of which are the Earls Derby, Sefton, Ellesmere, and Thomas Clifton, Esq., &c. The remaining eleven belong to various private individuals, who manufacture for general sale. These 31 tileries have been in full operation during the past year, and the supply of tiles has been inadequate to the demand. From 400,000 to 500,000 is the average number made at each kiln during a season. The quantity made during the present year at thirty-one kilns, at 450,000 each, is 13,950,000, which would lay 4,650,000 yards of drains; to this may be added 350,000 yards laid with turf, stone, &c., making a total of 5,000,000 yards, which, at the average distance of eight yards apart, will drain 8,360 acres. At this rate per annum, it will require one hundred years to drain the whole of the cultivated lands of Lancashire.

Of all the topics of agricultural discussion, on none has there been more difference of opinion than on draining. Its utility is, however, in this county, universally admitted; and the only difference is repecting the manner of execution. Formerly the discussion was as to the distance apart; but now as to the proper depth of the drains, and the distance asunder as dependent on depth. Where the subsoil is porous, all parties are agreed as to the advantages of deep draining; but there is a large extent of land in Lancashire in which the soil is a strong loam, 12 to 18 inches deep, resting upon a bed of red tenacious clay, and impervious in any great degree to water. This kind of land is very difficult to drain effectually, and the more difficult the less the depth of soil: and the obvious inference is, that the bed of clay in undrained land is an effectual barrier to the subsidence of the water. When drains are made in this kind of land, the water is observed to ooze out between the soil and the bed of clay. That this is the case is not disputed. Fully three-fourths of the clay subsoils of Lancashire are, for all effectual drainage purposes, impervious to water, and to sink drains three or four feet deep in these soils is unnecessary. If the drains be laid below the level of the line of separation of the soil and clay only six inches, it will drain the land as effectually as if carried to the depth of six feet.

Size of Farms, &c.—It has recently been the policy of a few landowners to increase the size of the farms, which in Lancashire are generally small. Mr. Bolton, of Harrock, ranks among the earliest of this class of improvers. He commenced his improvements about 1840, and as the farm leases successively expired, this gentleman took the land into his own occupation, thoroughly drained the whole, and eradicated the fences; in some instances converting the whole farm into a single field. This land is now in a very superior state of cultivation. The soil is of a gritty character, and very good crops of wheat, barley, turnips and clover, are produced. The whole of the farm is under the plough. The turnips are consumed on the ground, by sheep, and a large quantity of pigs and store cattle are fattened annually; and besides the manure produced by the cattle, £400 or £500 is expended annually in manure brought by canal from Liverpool and Manchester.

The crops all kinds, which were formerly stinted and poor, are now much above the average of Lancashire, though the elevation and exposed situation of the farm place it under considerable disadvantages. A very great expense has been incurred in effecting these improvements, and the farm has not hitherto made a remunerative return; but the land is improved in annual value fully 15s. per acre, and is the only instance that I am acquainted with in which the old cultivated lands have, by improved management, been much enhanced in value.

Very extensive improvements have also been made on the estates of Thomas Clifton, Esquire, in the Fylde. Several large farms, 300 to 400 acres in extent, have been laid out, which have been thoroughly drained, the fences ridded up, and the ditches levelled; and the size of the enclosures increased from five or six acres to fifteen and twenty acres;—and the general appearance of this district, in an agricultural view, is much improved.

Commodious and extensive farm-buildings have been erected by the proprietor, at a cost, in some cases, of £2,000 to £3,000, and in others, exceeding £4,000. The farmeries are in the form of a □. In the interior are several cattle yards, and sheds, with all appurtenant premises, adapted for feeding cattle; with thrashing barn, stationary steam-engine, and thrashing machine. They are generally on the plan of the Lothian farmeries, and were designed by Scotch architects.

Extensive improvements have been made in draining, enlarging the enclosures, and size of farms, on the estate of H. Hoghton, Esq., at Bold, near Liverpool. Several extensive farmeries have been erected. One at Bold Hall farm, is the most complete and extensive in Lancashire. The cattle yards are smaller, but more numerous than in those above described, and the cattle can be more divided. Two or three being confined in each yard. The cow houses, too, are more extensive and complete; and there is a dairy and offices, adapted for a dairy or cheese farm.

A large cistern stands in the centre of the square, elevated upon a brick column; and water is pumped into it, by the steam-engine, from a reservoir outside the buildings, which is conveyed from the central cistern, by means of pipes, into each cattle yard, &c.

The buildings are well finished, and adapted for a farm of 500 acres. The cost about £4,500.

Considerable improvements have been recently made in the farm buildings, in almost every locality, but much still remains to be done. Many are too small, and in general, the buildings having been placed without any regard to plan, are inconvenient.

MORAL ECONOMY.—The adjustment of the relations of the several agricultural classes, is of primary importance, in the present condition of the farming interest. It is obviously the interest of all parties, as it is also the interest of the public, that the fertility of the land should be preserved unimpaired, or, if possible, augmented.

And it is clear that the conditions of occupation should be so adjusted that this end may be obtained. By expenditure of capital and labour, the occupier is enabled to obtain annually a certain produce, of determinate value. A certain portion must be applied for remunerating the farmer for his trouble and outlay, and the surplus is the rent due to the landowner.

If the value of the gross produce be £300, and £200 be required to compensate the tenant, £100 is the just amount of rent due to the landowner; and, if he claim more than this, as £150, *e.g.*, then the tenant is deprived of adequate means for the cultivation of his farm, so as to raise a produce of £300 value, without impairing the fertility of the land.

But, in order to develope the capabilities of the soil, it is necessary to exercise labour upon it, to drain and manure, &c., and several years must elapse before the crops have returned an equivalent. Hence the necessity for leases and security of tenure.

These obviously reasonable principles have not, however, been practically regarded in this county. The farms are let from year to year: there is, indeed, generally a term mentioned, often of seven years; but not one-tenth of the farmers have any agreement in writing, and when they have, it is very rarely stamped, so as to be legally valid.

The terms of these verbal or written agreements, are in most instances adhered to; but cases are constantly occurring in which the tenant, having incurred the displeasure of the landowner, or his agent, is summarily ejected, and, if he have deviated from the conditions, is prosecuted for damage; but for his improvements, he is not compensated;—and thus, by a six months' notice being held out, in terrorem, a system of cultivation has been adopted, in many localities, suited more for immediate than ultimate advantage.

The mutual confidence doctrine is not adapted to the spirit of the times, and further, does not exist de facto among the agricultural classes of Lancashire, in the absence of specified rights and legal documents. It is erroneous in principle, as tending to produce servility in the tenant, and tyranny and injustice in the landlord.

LEASES.--Respecting the advantages or disadvantages of leases there has been some difference of opinion. In general the landlords have not been forward to grant, nor the tenant eager to accept them; but this is attributable to the stringent clauses and to the uncertainty which has existed as to the prospects of farming; and not because farmers are insensible of the advantages of an extended term of occupation and security for investment of capital. Several leases for terms of from 14 to 21 years, have recently been granted to some of the more enterprising farmers, principally in the Fylde district; and their advantages may be seen in the spirit of enterprize and improvement which have been elicited.

The conditions of tenancy, whether by verbal or written contract, are such as to place undue restrictions on the tenant. He is not allowed the free exercise of his judgment; and whatever may be the accuracy of his observations, or the extent of his experience, his hands are bound by some obligation of feudality or crotchet of modern theory,—and he cannot avail himself of the knowledge he has acquired, nor act according to conviction—probably acquired at great cost—nor profit by the lessons of experience.

When the lease or term of a farm expires, the agent surveys the farm, goes through each field, and imposes a valuation per acre, which is, for the most part, a merely conjectural estimate of the probable value, determined chiefly by the knowledge of the rent previously paid. When the land is in a good state of cultivation, or the condition of the markets and other circumstances favour an advance, an increased rent is generally demanded; and if the state of cultivation be inferior, and the productiveness of the land impaired, it very rarely has happened, within the last twenty years, that any concession has been made in the amount of rent. Increase of the number of farmers has increased the intensity of competition farmers; and rents have, from this cause, maintained their value, or advanced, in face of a falling market.

If the tenant is desirous of continuing on the farm—though he probably paid its full value, and improved it in condition at his own expense—he is induced to agree to some advance, on promise of some additional buildings, or outlay in draining, &c. And, at intervals of seven years, these impositions are again re-enacted.

Moreover, not only the course of cropping, but the actual crops to

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The following table shows the increase of population, and the augmentation in the value of property, between 1815 and 1841, in each of the hundreds of Lancashire :—

Area.		Population 1801.	Population 1841.	Valuation to County Rate. 1815.	1829.	1841.
266,970	Lonsdale hundred	42,842	61,507	278,156	282,365	301,987
145,110	Amounderness do.	39,618	93,033	258,092	294,995	364,454
175,590	Blackburn do.	88,503	193,832	278,881	373,916	497,541
79,990	Leyland do.	30,461	54,299	171,074	172,311	199,868
214,870	Salford do.	281,413	764,654	918,397	1,554,314	2,703,292
234,730	West Derby do.	189,728	499,729	1,201,409	1,536,733	2,124,925
1,117,260	Total of Lancashire........	672,565	1,667,054	3,106,009	4,214,634	6,192,067

Thus the population of Lancashire increased, in forty years, from 672,565 to 1,667,054, and the value of rateable property, between 1815 and 1841, from £3,106,009 to £6,192,067. This increase has been occasioned almost entirely by the extension of towns and manufactures, &c. In the agricultural districts the increase of population has been comparatively small, and the value of property, in the clay land districts, is less in 1841 than in 1815, as may be seen by inspection of the following table :—

be grown in each successive year are prescribed, with all possible

Area.	Name of Parish, &c.	Description of Soil.	Poplaton. in 1801.	Poplatin. in 1841.	Valuation to County Rate.		
					1815.	1829.	1841.
5,470	Townships of Howick, Hutton, and Longton, in Penwortham parish...	Strong loam.........	1,478	2,407	11,691	10,329	9,524
13,840	Croston parish..........................	Do. and alluvium	4,235	6,369	30,979	26,768	28,038
41,850	Kirkham parish..........................	Do. do., &c.	8,849	11,604	72,363	62,692	67,543
68,390	Ormskirk division of the West Derby hundred, exclusive of Southport and Ormskirk	Sandy loam and moss	11,571	18,708	88,785	106,342	109,272
5,350	Pilling....................................	Moss..................	718	1,232	4,953	3,986	4,134
4,160	Out-Rawcliffe............................	Do.	413	728	3,562	3,545	3,500
4,030	Upper Rawcliffe and Tarnacre..........	Do.	494	671	4,362	4,521	4,521
5,230	Tarleton..................................	Do.	1,116	1,877	6,697	5,860	6,510
2,840	Rufford....................................	Do.	853	866	4,401	4,788	4,790
151,160			29,727	44,462	230,785	228,831	237,832

The following are manufacturing parishes in the hilly country on the East side of the county, and the increase in population and value of property is very remarkable :—

3,220	Accrington................................	Moory................	3,077	8,719	5,640	12,526	21,825
2,410	Clitheroe..................................	Do.	1,368	6,765	5,359	12,973	14,999
8,050	Colne	Do.	3,626	8,615	8,573	14,684	17,139
3,910	Habergam Eaves.........................	Do.	1,919	8,526	7,041	14,390	29,167
17,590			9,990	32,625	26,613	54,573	83,120

minuteness—as for example:—"No two corn crops to succeed each other in any case. The wheat stubble to be ploughed the first year for turnips, to be followed by oats or barley, and laid down with clover and grass seeds during the remainder of the term. The clover root to be succeeded by oats first year, carrots second year, barley third year, clover fourth year, &c., &c. No part of the land to be broken up, or in tillage, except such parts, and for such periods only as hereinbefore or hereinafter mentioned; but to be used as meadow and pasture land only, during the term;" and "subject to the additional yearly rent of ten pounds an acre for every acre, and so proportionably for any greater or lesser quantity than an acre, broken up or *mismanaged*, contrary to these conditions, to be paid as increased rent, and *recoverable* as *rent in arrear*;" that "he is to manage the land in a husbandlike manner, and to keep the same well manured and in good heart and condition,—not to cut down any trees, plants, or underwoods, but *shall preserve the same so as to prevent sheep or other cattle from doing damage thereto*, and not to *cut or lop any hedges, except for repairing the same*." "Not to kill any game, fish, rabbits, or wild fowl," but "to do all in hispower to preserve the same;" and "to permit the landlord to bring actions in the tenant's name, against any person or persons sporting or trespassing upon the said premises, and shall not withdraw any such action or suffer himself to be nonprossed without the consent of the landlord, in writing."*

And besides all these stringent covenants—many of them injudicious, some of them absurd—the rent to be due in advance; and "in case the tenant should neglect to pay the yearly rent and *conditional rents* for twenty-one days after they shall have become due, or to do or perform *all* or *any of the covenants, conditions, or agreements* hereinbefore mentioned, or shall make any assignment for the benefit of his creditors, or become bankrupt, or if his goods and chattels, or any part thereof be taken in execution, or if he shall do any act whereby the said hereditaments shall become vested in any other person or persons, then the said lessor, his heirs or assigns, may, if he or she shall think fit, *be at liberty to re-enter on the said hereditaments* as of his and their former estate."†

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* In Lancashire very extensive depredations are made by the game in many localities. The landowners and magistrates are very sore upon this subject, when their fancied privileges are interfered with; and this is a fertile cause of much ill-feeling among the agricultural classes. The land will never be well cultivated until the Game Laws are entirely abolished.

† See Form of Agreement, in the Apendix.

These are not extracts from an antiquated agreement, but from one now used by a land agent of extensive practice in Lancashire, and, I presume, supposed by him adapted to the spirit of the times. And when such conditions as the above are inserted in leases,—granted with the professed view of promoting agricultural improvement—is it surprising that the occupiers of land should be slow to recognize their utility, or to subscribe such documents?

Thus the cropping of the ground is prescribed, and the farmer has only the menial office of superintending its execution; he is *to do* many things, and he is *not to do* many others; conditions—in many cases arising from unfavourable seasons and failure of crop—impossible to be literally observed. Yet, for the neglecting to do, or deviation from, the course prescribed, he becomes liable to exorbitant exactions or ejectment.

While such conditions of occupation as those above described continue to be imposed, it is not to be expected that more capital is likely to be expended in cultivation than is necessary for obtaining an immediate return, irrespective of future benefit.

And it is, in consequence, the fundamental policy of the generality of farmers to risk as little capital as possible; so that after each crop they may be reimbursed, and at any moment when compelled to quit, may be able to do so without leaving their capital irrevocably incorporated with the soil.

Thus, the proper end of cultivation, the full development of the productive capabilities of the soil, is thwarted by the impolicy of the conditions of tenure, imposed on the cultivators, by preventing the exercise of the judgment of the only men who, from local knowledge and experience, are competent to judge aright,—by want of security in the investment of capital, and its consequent withdrawal to other uses,—and, lastly, by the exercise and adoption of defective culture, rendered imperative on the prudent farmer for his own security. And this is not the whole of the evil. Not only is capital driven from the land, but talent and enterprize in its application also. Educated and intelligent men cannot be induced to become farmers: if they do, they soon become dissatisfied with the agricultural system and the trammels of feudality, which, "deprived of its slavish incidents," still pervades the agricultural policy of the country.

No sooner is a tenant placed in possession of a farm on the estates of some of the larger proprietors, whatever may be his status as to education and intelligence, then he is looked upon as a dependent of the "lord," instead of as an independent capitalist, employing his means for advantageous investment in the production of food.

And it is but too common for land-agents, "dressed up in a little brief authority," to render themselves obnoxious to the occupiers of property, by their imperious demeanour and interference, and not unfrequently by unjustifiable exactions.

Agricultural Societies.—Ten agricultural societies had, a few years ago, existence in Lancashire; but their number is now somewhat reduced, by the amalgamation of the Manchester and Liverpool Society, and the breaking-up of others, in consequence of the establishment of the Royal North Lancashire Agricultural Society, in 1847. Very few of them have succeeded in enlisting the sympathies of farmers, and they have not been well supported. They have never employed intelligent means for the attainment of the ends proposed; and the stimulus of premiums, often of inconsiderable amount, has not been sufficient to induce farmers to propagate cattle and plants, &c., which would not, in the market, repay the cost of production. The aim of the agricultural societies has been, to foster a kind of exotic culture, proper and applicable to some parts of the country, but unfit, because found unprofitable, in the climate of Lancashire.

I have conversed with many farmers on the subject of these societies, but never found that any considered himself wiser, or was induced to alter his practice, in consequence of the knowledge by them communicated.

The unsatisfactory nature of these societies have induced the farmers to attempt the establishment of farmers' clubs. One has been formed in the neighbourhood of Lancaster, and another in the Blackburn district; and it is in contemplation to establish one in the Fylde. From these beginnings, some good may be anticipated, by intercommunication of sentiment and freedom of discussion and inquiry on all subjects affecting the agricultural interest.

CATTLE.

The greater part of the cattle of Lancashire are of a mixed breed, the short-horn predominating. Very few of the native long-horned breed, formerly so much esteemed, are now to be found within the county. Some farmers are of opinion that, in respect to the quality of their milk and endurance, they were superior to the breed by which they have been supplanted; but it does not appear probable that, in a breeding county, the race would have become extinct, had its virtues entitled it to preservation. There are a considerable number of "pedigreed" short-horned stock within the county, but they are confined to gentlemen, or amateur farmers, who have other sources of income than the profits derivable from land. Excepting in a few localities, the pastures of Lancashire are not sufficiently nutritious for the advantageous keeping of the pure short-horns, and they are better adapted for grazing than dairy purposes, the latter of which, in this county, is the most profitable.

But, although the pedigreed cattle are not approved by farmers, from a conviction of their unprofitableness, still it is an object with most of them to obtain a "pedigree bull;" and they are, by this practice, gradually raising a character of stock, which, in its perfect state, they denounce as unprofitable. By so doing,—and this is, indeed, the object,—they increase the market value of the young stock; but, in dairy farms, the advantages of this policy are somewhat questionable, if, as is commonly believed, approximation to symmetry of form is accompanied with a diminution of milking qualifications.

HORSES.

The horses, as may be expected in a commercial county, are of various kinds. In the Liverpool district, the horses are large and powerful, and possess, in general, much activity. One of these horses may be frequently observed ploughing alone in the light lands of that district. They are rather too heavy to be advantageously employed on the land, but are suited to the method of farming pursued in that locality, where a heavy produce, as potatoes, carrots, &c., have to be carted to the distant towns, and manure re-conveyed to the land.

In the northern division, the horses are of lighter character, and, not oppressed by undue weight, have, in agricultural operations, greater available power. Many superior gig and carriage horses and hunters are bred in this district; and to this branch of farming economy considerable importance is attached.

SHEEP.

There are not many sheep kept in Lancashire, though there is generally a small flock upon the larger farms. They are purchased with a view of being fattened for the butcher, or ewes are obtained in autumn or spring, at the annual fairs, which yield lambs that are sold to the butchers, together with the ewes, in the succeeding autumn and winter. Among the hills on the east side, and in the north part of the county, a kind of horned sheep is kept for breeding purposes, but even here the sheep flocks are not numerous, and less so than formerly in some localities.*

GENERAL REMARKS.

To the eye of a stranger, the general appearance of Lancashire does not give a favourable impression as an agricultural county. The small enclosures, the stubby and irregular thorn fences, the variety of practice in different places, the absence of uniformity and system, the coarseness and starved appearance of the grass lands, added to the gloominess of the scenery, owing to the humidity of the climate, and the infrequency of seeing farming operations conducted on an extensive scale,—are circumstances which pre-dispose casual observers and modern amateur practitioners and writers on husbandry, to an unfavourable judgment on the state of farming; who ascribe to imperfect cultivation the practices arising from the varied demands of a dense population, or the inevitable conditions of climate.

That the agriculture of Lancashire is not as perfect as it might be is readily admitted, and some of the reasons of this have been pointed out above. The clay lands are in the worst state of cultivation throughout the county, and the farmers of these lands in the worst circumstances. Some of the reasons are obvious. The clay lands are, on the whole, the least productive. In wet and cold seasons, the produce being very deficient; and the expenses of working are much greater than on other soils, and the rents paid much out of proportion to the quantity of produce raised upon them. In a large proportion of the clay lands on the south and south-west of Preston, as, also, north of that town, the yield of wheat in 1848 did not exceed twelve bushels per acre, and in some instances was less. The cultivation is in these districts in a very backward state: formerly potatoes were grown extensively, and several grain crops taken in immediate succession. Nearly the whole of the produce is sold off, and there not being facilities for procuring manure advantageously, not much is applied. Lime is supplied (procured from Chipping) as a dressing on fallows for wheat, but it has lost its efficacy in consequence of the complete exhaustion of the "humus." The practice of marling, too, a century ago, has entailed some evils on these districts; and the produce of the grain crops is considerably less at the present time than in the early part of the present century, and is the effect of the system of farming. Nearly half of the land in some districts is in an arable state;—very few turnips are grown, and the cattle are few in number, and but indifferently kept;—when this is the case, and there is no artificial aid, the land must, as in these districts it certainly has, become impoverished.

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* On the alarm of the French invasion, in 1803, a census was made of the cattle in Lancashire. At that time there is stated to have been 648 oxen, 84,527 cows, 54,573 colts and young cattle, 80,172 sheep and goats, 30,982 pigs, 5,474 riding horses, and 26,660 used for draught. The number of sheep will have diminished, and the number of cattle increased, since that period.

In most other parts of the county a better method of cultivation is practised, and, with a few local exceptions, no deterioration has taken place; and there is reason for believing that, as a more perfect management is now adopted, a somewhat greater increase of produce is now obtainable.

Some farmers confidently state this to be the fact, while others assert the contrary; but it appears to me that the past and preceding years having, from unpropitious seasons, caused a deficiency in one or other of the grain crops, may account for the negative view of the case; while the first opinion derived from a more extended period of observation expresses the real truth.

The yield of the grain crops in Lancashire is considerably less than in many other parts of the kingdom. The average yield of wheat was stated in the parliamentary inquiry, in 1836, to be 25 bushels per acre; but this appears to me, taking the average of years and the whole extent of the county, to be too high an average.

The following table shows the estimated average yield of wheat, in each of six years from 1830 to 1835. It has been compiled from the notes of the valuers of corn tithes. The district is extensive, containing a variety of soils—and is a fair representation of the agricultural character of the county:—

Table shewing the Estimated Average Produce of Wheat per Statute Acre, of each of the Townships within the parish of Kirkham, in each of the Six Years from 1830 to 1835.

Names of Townships.	Areas in Statute Measure.	Description of Soil.	Produce per Statute Acre.						Average of each Township during the whole period.	Extreme proportional variation from average.
			1830	1831	1832	1833	1834	1835		
			Bshs.	Bshs.	Bshs.	Bshs.	Bshs.	Bshs.	Bushels.	
Great and Little Singleton......	2350	Clayey loam and moss.........	17¼	18¼	21	22¾	13¾	25	19½	⅓
Weeton-with-Preese............	2640	Ditto do. & gravelly loam..	21¾	19¼	21	25	11½	28	21	½ nearly
Ribby-with-Wray..................	1210	Ditto..................	16	17¼	20¼	20¼	17¼	23¾	19	¼
Freckleton............................	1430	Ditto and alluvium............	16¾	17¼	18¼	20¼	15¾	21	18	⅙
Clifton-with-Salwick	3010	Ditto do. and moss....	19¼	21¾	24½	26¼	19¼	26¼	23	⅙
Westby-with-Plumpton	3310	Ditto and moss	20¼	19¼	22	22¾	14	22¾	20	⅓
Newton-with-Scales	1580	Ditto and alluvium............	21¾	23¾	21¾	21¾	16¾	22¾	21¼	¼
Greenhalgh-with-Thistleton and Medlar-with-Wesham....	4170	Ditto and moss..................	17½	17½	20	21½	20¼	25¼	20¼	¼
Little Eccleston-with-Larbreck	1210	Strong clayey loam & alluvm..	19¼	18¼	21¾	21¾	14¾	20¼	19½	¼
Warton	1360	Ditto..................................	16¾	16¾	18¼	21¾	13	23½	18½	⅓ nearly
Treales, Roseacre, & Wharles...	4100	Clayey loam and moss.........	19¼	19¼	21	20½	20¼	22	20½	1–10th
Bryning-with-Kellamergh.......	1040	Ditto ditto................	13	15½	16¾	21	16¾	22¾	17¾	⅓ nearly
Kirkham..................................	850	Ditto..................................	17¾	17¾	18¼	20¼	20	22¾	19½	⅙
Hambleton..............................	1230	Ditto ditto and alluvium	21	20¼	19¼	21¾	11½	22	19½	½ nearly
Goosnargh-with-Newsham......	9290	Ditto ditto................	14¾	15	14¾	17½	18½	22¾	17	⅓
Whittingham	3070	....	...	...	...	...	...	...	...	...
Total area..........................	41850	Averages of each year....	18	18½	20	21¾	16¼	23½	20	1–5th

Hence it appears the average yield of wheat was twenty bushels per acre. Oats, during the same period, were forty bushels, and beans twenty-one bushels per acre. Since that time, agricultural operations have been more perfectly performed: beans are more frequently sown in drills, with manure, and are, in consequence, a more certain and a more prolific crop; or they are sown broad-cast, on ley ground, manured, in lieu of oats, which forms the following crop, and both crops are found to be benefited by this inversion. Fallows, too, are much more perfectly managed than was the case formerly, in respect to clearing from weeds and manuring, the cultivation of turnips for consumption on the farm, too, has been greatly extended; and, in the districts where these improvements have been made, an increased produce has been realised.

With respect to the relative advantages of the different systems of husbandry, it may not be superfluous to express an opinion, though it will leave the question unsettled until time and experience determine its error or correctness.

It is well known that no one system of husbandry is suited equally to all parts of the country,—and in general that established in any district is that which, being the result of ages of experience, is the best adapted to the climate, soil, and local circumstances of each. And as a varied produce is required to supply the varied wants of society, so differences of soil and situation give rise to the propagation of different kinds of agricultural products. What is true of an extensive tract of country, is in some respects applicable to a single province or county, where differences of soil vary the modes of culture, and local requirements the character of the crops cultivated. Thus, in the light land district, in the south-west part of the county, between the Ribble and Mersey, the exclusively arable system there pursued, and the extensive growth of potatoes, carrots, and other vegetables, and grain, in consequence of the extensive demand for these vegetables, and all other kinds of produce, in the large towns of Liverpool and Manchester, and the facilities for obtaining manure, by means of canal, render it the best adapted to the soil and local circumstances of that district—because the most profitable. The system of turnip growing and cattle and sheep feeding, as practised in the eastern counties of England and in Scotland, would not, on the west side of the kingdom, in Lancashire, yield more than half the value of the surplus produce now obtained.

And among the granite hills, varying in height above the level of the sea, from 400 to 1,500 feet, it is the most advantageous to keep the land in grass, for the pasturage of cattle or sheep, for breeding purposes. Oats were formerly grown on this district, but wheat only to a small extent—as even in the lowest situation it seldom ripens perfectly; but the undulations of the surface, the elevation and humidity of the climate, are insurmountable obstacles to the advantageous adoption of arable cultivation. Yet, in spite of all these natural disadvantages, and the voice of general experience, there have not been wanting individuals who have attempted the arable system and the growth of grain—either from theoretical views of agricultural proprieties or blind adherence to the practices of the place of their nativity. The following example will show the result of their experiments. A farmer from a distant part of the county, took a farm of 300 acres, some years ago, at Turton, near Bolton-le-Moors. His plan was to fallow for wheat, and to dress with lime, at the rate of six tons per acre; the cost of the lime was £1 per ton. He employed a great number of men and horses, and spared no expense that he considered might improve his crops, but his expectations were not realised—the wheat proved very deficient, and was moreover of inferior quality; and in a few years he gave up possession of the farm, having lost from £3,000 to £4,000.

The modern theories of agriculture which have been recently promulgated by the various agricultural societies, and practised by a few farmers and agricultural gentlemen, are, in some of their features, liable to considerable objection. The characteristics of this mode of farming are the extensive growth of turnips, thorough draining of the soil, the eradication of fences, &c.,—deep ploughing, the breaking up of all permanent grass land, and the adoption of a regular alternation of root, grain, and artificial grass crops throughout the entire farm,—and the fattening of sheep and cattle for the butcher, on the turnips, &c., the produce of the farm. There are some districts, of small extent, where the soils lie upon a porous stratum, as in several parts of the district north of Lancaster, where this system may be advantageously practised; but this is no proof of its applicability to the county in general.

Now if extensive draining, eradication of fences and levelling ditches, and growing a large extent of turnips, were the criteria by which to judge of the merits of agricultural systems, then the practitioners of the new husbandry would justly claim superiority. But though they are entitled to high praise for the enterprising spirit which has prompted them to effect these extensive territorial improvements, and also for superior management in preparing the land, the system itself must stand upon its own merits, and be tested by its ultimate results,—by the efficiency of the means adopted for attaining the end in view, the creation of the greatest surplus after defraying the cost of cultivation.

In the first place it requires a greater amount of labour, and a larger capital, and in consequence the expenses are considerably increased. The next obstacle to the adoption of the arable system on the stronger soils is the large quantity of rain, and the general humidity of the climate. In consequence of this, the land of Lancashire is much more difficult to cultivate, and when cultivated, does not yield the same returns, as land of similar character in other parts of the country. This moisture is favourable to the growth of turnips, and they never fail here to the extent that is frequent in other places, and the weight of the crops obtained is as great as in any part of the kingdom. They have not, however, been long introduced for field culture in Lancashire, and they have therefore the advantage of a kind of virgin soil,—not exhausted of the constituents requisite for the growth of the turnip; but it is well known in the districts where they have been a long time grown, that like clover frequently repeated, the crop deteriorates. The success, therefore, which has attended the cultivation of turnips,* must not be wholly ascribed to the advantages of climate.

But, if the bulk of the turnip crop be as great in Lancashire as elsewhere, it is not found of equal value for feeding purposes, that is, will not produce so much beef or mutton. In some of the turnip growing districts of Scotland, the farmers frequently sell their turnips to graziers, who feed cattle upon them, for £10 per acre and the manure produced by this consumption. I have had considerable opportunities of observing, and have made experiments on this point, and am satisfied that the general experience of farmers will confirm the opinion that not more than £3 to £4 per acre, together with the manure, can be made in this county, from an imperial acre of turnips by stall-feeding of cattle. The grass lands of Lancashire yield a greater quantity of produce than many of the best grazing districts of the south; but the quality is very much inferior, and will not fatten stock so advantageously. The grasses partake somewhat of an aquatic character, and excepting in a few districts of small extent, upon the red sandstone and limestone rocks, or on the banks of the rivers and marshes, the fattening process is exceedingly slow. And it is probable there is a similar defect in the feeding properties of turnips; or the conditions of climate are inimical to their efficacy.

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* Forty tons are stated to have been grown per acre near to Liverpool, and the prize crops of the agricultural societies are often 25 to 30 tons per acre.

It has been further contended that, by growing a large quantity of turnips for consumption on the farm, not only may the fertility be preserved unimpaired, but that an exhausted soil may be renovated.

This, however, does not accord with the chemical theory, that the elementary constituents of the crops must exist in the soil, or manure applied. So far as the manure produced is derived from the consumption of turnips alone, it will contain only the elementary constituents of turnips, and is not, therefore, a proper manure for grain, the production of which is the object of turnip growing.

If oilcake, grain, &c., be consumed along with the turnips, then of course the quality of the manure for the latter purpose is much improved, and then the matter is resolved into a question of cost.

Subjoined is a statement of the expenditure and proceeds, for three years, of a strong land farm of 140 acres, which, when undertaken, was in all respects in a very rough condition, and was attempted to be improved by the arable system. The course of cropping was oats, drilled beans or turnips, wheat, clover. A large milking and store stock were kept, and a few sheep, fed on turnips, straw, &c., in the winter. The land was thoroughly drained, and all possible economy used in the application of labour, by employing the best implements and machinery, and strict surveillance of all operations:—

Total Receipts in three years.

	£	s.	d.
Dairy Produce	191	2	6
Grain	361	9	0
Roots	145	7	2
Hay and straw	70	0	0
Stock sold and value on hand	687	8	2
Sundries	10	0	10
Amount of receipts	£1465	7	8

Total Payments in three years.

	£	s.	d.
Hay, straw, & provender	106	10	3
Labour and wages	782	9	10
Seed corn & grass seeds	147	14	0
Manure	64	1	0
Repairs of implements, saddlery, &c.	62	16	5
Live stock	754	7	6
House expenses	82	19	10
Farriery, marketing expenses, firing, &c.	87	7	0
Rates	90	18	0
Tithes	75	0	0
Rent	615	0	0
2½ years' int. on £1188	148	0	0
Superintendance	150	0	0
Amount of payments	3167	3	10
Amount of receipts	1465	7	8
Total loss	1701	16	2
Deduct for fall in markets	150	0	0
Loss in three years on the current farm acct.	1551	16	2

This, it may be said, is an unfavourable case. The circumstances were, doubtless, more so than ordinary. About twelve bushels per acre was the average yield of wheat; of drilled beans, well manured, twenty-five bushels; and of oats thirty bushels;—which will explain the small amount realised by the grain. The clover crops sown upon wheat seldom succeeded; and the cattle, besides being otherwise unproductive, were reduced in value, between 1845 and 1848, in consequence of a fall in the market of fully thirty per cent.; and £150 is therefore deducted from the total of the adverse balance, as not belonging to the legitimate expenses.

Now, if instead of growing turnips and maintaining a large stock of cattle for the purpose of producing manure—manure had been purchased (for which a canal near the farm afforded facilities), and summer-fallowing had been resorted to, to free the land from weeds, though the expenses for the first three years would have exceeded the returns, the deficiency would not have exceeded £500 or £600. The wheat crop would have been much more prolific, and the clover have succeeded better, and the risk of loss on the stock of cattle been considerably diminished.

The system of farming adopted in Lancashire on the stronger soils is to preserve about two-thirds of the farm in meadow or pasture, and one third arable; to keep a dairy and breeding stock in the pastures during summer, and feed them on straw and turnips during winter; to crop the arable land as follows—beans, oats, turnips or fallow, barley or wheat, clover; to vary the land under the plough from time to time, but to preserve the same proportion of arable and grass land. By this method of cultivation, the expenses are not considerable; but the surplus will be greater, and the fertility of the land may be preserved unimpaired, and by judicious management, be improved; as is evinced by the improvement in the condition of many farms under this method of cultivation. The faults of the Lancashire farmers do not lie in their system of culture, but in the inefficient working of it: the land is not kept sufficiently clean; the drainage has, until recently, been defective; and variation of crops is not, in some places, sufficiently attended to. But the practices of those farmers who carry out in an efficient manner the mixed dairy and arable farming will be found to be attended with the most beneficial results to themselves and the landowner.

There are a few peculiarities of agricultural practice which it may be desirable to advert to.

Cultivation of Wheat.—The growing of wheat after a drill crop, especially after turnips, on strong lands, is not approved of by the generality of farmers. However well manured the land may have been, the crop is invariably three to four bushels per acre less than after summer fallow. The comminution of the soil, caused by the frequent working and pulverising, causes the absorption, and consequent retention, of a greater quantity of moisture; the carting off the turnips, and consequent treading of the land at a late period in the autumn; and the impossibility, in many seasons, of sowing the seed before December, and frequently not until the spring, give a satisfactory explanation of the deficiency of the grain crop.

When the land is summer fallowed, there is, almost in any season, opportunity of ploughing the seed furrow, when the land is dry, and of sowing the seed in October; and when the ridges are properly laid out, any subsequent rain tends to pulverize the soil, and the "caking" of the surface is prevented.

Beans in Drills.—The growing of beans in drills is very generally approved of, but not universally practised. A better crop is in general obtained; but the expense of preparing the land, the extra manure applied, and the difficulty and expense in many seasons of keeping the ground sufficiently clean for wheat to succeed, are great drawbacks on the admitted advantages.

The best method of growing beans for profit is to sow them upon newly broken-up ley—manured if land of inferior quality—in preference to oats, which has hitherto been the usual practice.

The difficulty in this county of obtaining wheat after drill crops, on the loamy soils, has led to the more general practice of sowing barley or oats, to be followed by clover; and in order to bring a wheat crop into the rotation, several of the arable farmers have this year trench-ploughed clover ley,—and, in some instances, grass land,—for wheat. This is the general practice in some counties, but it is a method which is still adding to the expenses of a system of husbandry, the great expense of which is its chief disqualification.

Thin Sowing.—As to the theory of thin sowing which has recently been the leading topic of agricultural discussion, it has not many advocates in Lancashire, though in some of the best cultivated districts the quantity of seed applied is not very great;—wheat, 1½ bushels per acre; oats, 3 bushels; and beans 4 to 5; and a better crop is obtained than from a larger quantity. On the light lands in general, and on poor strong lands, the quantity of seed is greater—from two to three bushels of wheat, and other grain in proportion.

Spade Husbandry is practised to a considerable extent in the potato growing districts, particularly for the earlier kinds; but it has been applied in a few instances with considerable success for corn culture. It has been practised on Preston Moor on a plot of land of 100 acres, belonging to the Corporation of Preston, by Mr. Matthew Brown, and very superior crops have been produced.

Mr. Threlfall, of Woodplumpton, near Preston, ranks among the earliest advocates of spade husbandry, and still practices it, though not on a very extensive scale.

I am not acquainted with any decisive examples of the advantages of this mode of farming, but probably in some situations it might be practised with advantage.

At the meeting of the Preston Agricultural Society, in 1842, Mr. Threlfall stated that he dug part of an oat stubble in 1839, which was planted with potatoes and turnips. Another part of the field was prepared for turnips with the plough in the usual way. In 1840 the dug ground was sown with wheat, and the ploughed part with oats. Both were sown with clover, which was a much better crop in 1841 on the dug ground, though sown on wheat. The clover ley was ploughed, and sown with oats, in the following year; and the crop on the dug part of the field was fully one-third larger than on the ploughed part.

Mr. Threlfall informed me that last year he obtained from one statute acre of ordinary land, which had been previously much impoverished by frequent ploughing, 7½ loads of meal=85 bushels of oats. The cost of digging was 32s. per acre. The average produce of the oat crop in this district, cultivated in the ordinary way, does not exceed 3½ loads of meal=40 bushels of oats per acre.

In concluding this report I must express my obligation to those farmers who have communicated to me the results of their experience, and for the freedom with which they answered my inquiries. Being acquainted with a great number of the farmers in some of the best cultivated parts of Lancashire, I have had facilities of obtaining information where my own experience did not enable me to decide; and it is with considerable regret that I have to record the opinion derived from acquaintance with their circumstances and from information, that a class of men so estimable in all respects, so frugal and industrious, patient under difficulties, and—where not thwarted by absurd restrictions or undue exactions—spirited and enterprising, possessing high moral worth, and practical knowledge of the art of cultivation, are not treated with that consideration to which these qualifications entitle them. They are not generally men of education, in the popular sense; but, so far as the business of farming is concerned, they are in possession of all that education can confer —knowledge of the end to be attained, and of the means to be applied to attain it.

Whatever effect intellectual acquirements may produce on the character of the individual, my experience does not enable me to say that a knowledge of Greek or Latin, or acquaintance with chemico-agricultural speculations, will enable an individual to grow two grains of wheat where one grew before, or swell into further development the proportions of a turnip or the bulk of an ox; or what will be considered of most importance, to extract the hidden gold in greatest abundance.

The art of agriculture is entirely experimental, and is to be acquired and improved by experience alone. The established practice of any district is the result of a succession of experiments made during a long period, by the appropriation of the most successful, and the rejection of others; and these established customs, though admitting improvement, cannot be departed from with safety, being natural adaptations to the soil, situation, climate, or other circumstances of the country.

There have been in Lancashire, Yorkshire farmers, Lincolnshire farmers, Northumbrian and Scotch farmers, who have adhered to the practice of their respective counties; and some natives of Lancashire, who have adopted the peculiarities of culture of other counties; but I am not aware of any who have persisted in what may be called an exotic system of culture that have been remarkably successful; but I know of several who have been ruined, and others who have been greatly impoverished They have been deceived in general by the anticipated yield of grain, which, as shown by the tables, does not much exceed half that obtained in other parts of the kingdom; and the difficulty of bringing the land into proper condition, in consequence of the wetness of the climate, has been another impediment to their success.

But their example has not been without its use. It has tended to arouse a spirit of inquiry, which, in process of time, may break through the obstacles, that feudal usages and the bigotry of custom have opposed to intelligent progress, and shown that principle and system, when corrected by local knowledge and experience, produces economy of practice; and that liberal conditions of occupation, and a prospect of security, foster the spirit of enterprise, and facilitate the application of capital and art.

POLITICAL OBSERVATIONS, &c.

Before concluding the Essay, it may be useful to make a few observations on the political position and prospects of the agricultural classes, and point out the effects of the abolition of duties on imported corn, on the profits of farming, and on the progress of agricultural improvement; and shew the necessity for a re-adjustment of the relations of the several agricultural classes, corresponding with the spirit of the times and altered circumstances of society.

Free Trade.—I do not intend to enter upon a discussion of the policy or impolicy of agricultural protection in a national view. I do not think that, in the present state of the public mind, the augmentation of the import duties, if advantageous, is practicable; or that the country will, in any circumstances, consent to the re-imposition of *protective* duties of any kind. But a moderate fixed duty upon corn, would be only a just set-off against those "peculiar burdens" which now it is admitted exist, and so far be beneficial to the farmer. It would also be advantageous to the public, by the amount of revenue it would realize; and being paid in reality by the foreign producer, a corresponding reduction might be effected in the general amount of taxation. But let free trade have a fair trial: if it fails, the remedy is obvious.

Its immediate effect, however, is to diminish, in the first place, the value of agricultural produce, and, consequently, the income of the farmer. The average price of wheat, in a year of extensive failure of the potato crop, and extraordinary deficiency in the yield of wheat, being only 45s. per quarter—which, though not entirely, is chiefly the result of the operation of free trade—it may be confidently presumed that, in ordinary seasons, the price of wheat will not exceed 40s. per quarter. The average price, heretofore, having exceeded 50s. per quarter, the reduction that may be expected will be fully 10s. per quarter, or 1s. 3d. per bushel. The value of dairy produce will also, undoubtedly, suffer a corresponding reduction. The quality of American cheese has already obtained for it a preference in some of the principal markets; and, in consequence, English cheeses of medium quality have been found difficult to sell. The average reduction in price of all kinds of dairy produce, may be stated at 10s. per cwt.

The gross produce of a farm of 100 acres is shown, at page 24, to be £390 5s. 0d. By a reduction in the price of wheat of 1s. 3d. per bushel, and in dairy produce of ten shillings per cwt., the amount of the gross produce will be £315 5s. 0d., being a reduction of £75 in the value of the produce of 100 acres, or 15s. per acre. If the farm be exclusively arable, the value of the gross produce of 100 acres would be reduced in value £110, or 22s. per acre.

To obviate this loss, the farmer will diminish his expenses. He will either discharge some of his labourers, or reduce their wages. He cannot discharge them without diminishing still further his next year's income; and the practicable reduction of wages in a farm of 100 acres will not exceed £20 per annum. We will, however, suppose that, by a reduction of the wages of the labourer, diminishing the number of working horses, and economizing labour in every possible way, that a reduction of 20 per cent. on the gross expenditure could be effected. The tithes will be reduced by the fall in the price of grain. The rates, it is probable, will increase,—but suppose them to remain as at present. Consequently the amounts of possible reductions to meet the deficiency are as follows :—

	£	s.	d.
The expenditure in labour in a farm of 100 acres being £199 10s., reduced 20 per cent.	39	10	0
Tithes, £12 10s., reduced 20 per cent.	2	10	0
Rent, £150, reduced to meet the deficiency 22 per cent...	33	0	0
	£75	0	0

Thus, free-trade diminishes the wages of the agricultural labourer, the profits of the farmer, and the income of the landowner. This will be the ultimate effect. But the rent, &c., will not be immediately reduced; nor, in cases of farmers possessing capital, the expenditure in labour; and the farmer will have to bear the whole loss in many cases, and in all, a considerable proportion of it *

Are farmers in general prepared for a reaction such as this will occasion? Have they heretofore been receiving an extravagant rate of profit, and in consequence able to endure a temporary adversity? With the exception of the potato districts of the sand and moss lands, farming has during many years past been barely remunerative. The

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* The impolicy of free trade must not be inferred from its immediate effects on the income of the farmer. Change of any kind, however expedient, is always accompanied with, if it does not imply, partial inconvenience. . . . We are not discussing the national policy, but from exemplification of its effects on the profits of farming, shewing the necessity for a modification of the existing pecuniary arrangements of the agricultural classes, and an improved system of agricultural economy.

high prices of 1846 have been counterbalanced by the deficient crop and low prices of the present year; and in each year, since 1845, the farmers of the strong lands have lost a very large amount of money, by the failure of the potato crop, notwithstanding the high prices of that article. After expending £10 to £12 per acre in manure and labour, many acres have been ploughed up, the crop not being worth the expense of getting up in the ordinary way. Many farmers who planted with a view to sell, have not had sufficient for domestic use. On fully three-fourths of the lands of Lancashire, farming, during the last ten years, has been barely remunerative, and in many cases a ruinous occupation; and farmers are but ill prepared for the change that awaits them.

Steady Prices.—It is said, that if free trade does not secure high prices for the farmer, it will ensure their stability: that they will not rise and fall with the vicissitudes of the seasons; and the farmer can rely on his calculations of prospective profit with greater confidence.

It is well known that, in consequence of difference of seasons, the produce of the crops varies considerably; and, heretofore, prices have generally corresponded in an inverse ratio with the excess or deficiency of the crops. When the harvest was abundant, prices were low; and when deficient, they advanced.

And, consequently, when the earth was filled with abundance, all classes of the community participated in her bounty. The farmer, by the excess in quantity, was compensated for the diminution in price; and by means of diminished price, the public shared in the abundance.

In seasons of scarcity, all suffered privation; but the farmer obtained some degree of compensation, by the increase of price. But the effects of free trade will be, to preserve uniformity of price, whatever may be the variations in the yield of the home-grown crop.

Its general effect is, to cause the home prices to approximate to those of the corn-exporting countries; and, consequently, in seasons of abundance, a very slight depression of the markets, or even the difficulty of sale, would prevent any great degree of importation, and the home grower would have the monopoly of the market; but when a deficient crop occurs, a price may prevail which will leave the importer a profit. He will send out his orders with confidence, and a large influx of corn will be the result; and the price of grain in years of scarcity will not greatly exceed the price of the most prolific crop.

The truth of these remarks is confirmed by the experience of the past and present year.

The variations in the yield of wheat in different years, will be seen by inspection of the table at page 51.

In 1834, the average produce of the wheat crop in the parish of Kirkham was 16½* bushels per acre, and the following year 23½ bushels. The average price of wheat, in 1834, was 46s. 2d. per quarter; in 1835, 39s. 4d. per quarter. And the value of the produce of 100 acres, in the respective years, will be :—

	£	s.	d.
In 1834—100 acres, at 19½ bushels per acre, will yield 241 quarters, which, at 46s. 2d. per quarter, is worth......	553	6	0
1835—100 acres, at 23½ bushels per acre, will yield 287 quarters, which, at 39s. 4d. per quarter, is worth......	564	8	0
Difference..........	£11	2	0

But if uniformity of price were maintained in all seasons, say 46s. 2d. per quarter, then

	£	s.	d.
In 1834—The value of the crop of 241 quarters, will produce ...	553	6	0
1835— Do. do. 287 do. ...	662	10	0
Difference..........	£109	4	0

Thus the difference in the quantity of the crop will cause a difference of 22s. per acre in the value of the land; and will, in some cases, make a difference in the farmers' receipts, equal to the united amount of rent, tithes, and taxes.

From the above observations, it is apparent that knowledge of the extent of variation of the crops has become of additional importance to the farmer, and a few remarks on the subject may not be uninteresting.

Within the Christian era, there is on record the occurrence of 230 years of extreme scarcity of food, arising from failure of the crops, in different parts of the world. And since the year 1000, *i. e.*, during a period of 848 years, there have been 125 years of scarcity recorded:—

11th	century,	21	years of scarcity and famine,	or every	5th year.
12th	„	33	do.	do.	3rd „
13th	„	24	do.	do.	4th „
14th	„	13	do.	do.	8th „
15th	„	7	do.	do.	14th „
16th	„	11	do.	do.	9th „
17th	„	6	do.	do.	16th „
18th	„	7	do.	do.	14th „
19th	up to 1849,	3	do.	do.	16th „

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* The aggregate crop of wheat throughout the kingdom, in 1834, was a full average; and the deficiency of the crop in Lancashire was produced by the occurrence of a storm on the western coast, about the time of harvest, which did great injury to the standing corn. In consequence of this anomaly, the produce of three years of average crops is made the basis of the calculation, viz., 19½ bushels.

On the average of the whole period, in every seven years there has been one extremely deficient crop. But within the last three centuries the periodic recurrence of years of scarcity is only one in twelve. Hence it appears that the recurrence of years of scarcity is much less frequent than formerly—the consequence of an improved system of agriculture.*

To determine the law of alternation of productive and unproductive seasons is extremely difficult. The following table shows the number of years in which the crops were below an average, and those in which the average was exceeded, in decennial periods :—

	No. of Years of Scarcity.	*No. of Years of Plenty.*
1700 to 1710	3	3
1710 to 1720	2	1
1720 to 1730	2	2
1730 to 1740	1	4
1740 to 1750	0	8
1750 to 1760	1	1
1760 to 1770	6	0
1770 to 1780	4	0
1780 to 1790	3	3
1790 to 1800	6	3
1800 to 1810	3	2
1810 to 1820	6	4
1820 to 1830	2	0
1830 to 1840	3	5
Total	42	36

In the periods comprised in the above statement we are unable to trace any rule or regularity of recurrence. Even taking periods of fifty years, which might be supposed sufficiently long to determine a mean of the variations, we find—

In the 1st period of 50 years, 8 years of scarcity and 18 years of plenty.
„ 2nd „ „ 20 „ „ 7 „ „
„ 3rd „ „ 14 „ „ 11 „ „

In 1141 there commenced a series of 12 very deficient harvests in immediate succession; and again in 1288, which continued, with slight alleviations, forty years. And in recent times, during eleven years from 1740 to 1751, there was a continued series of nine productive harvests. In eleven years from 1793 to 1804, six or seven were years of scarcity; and from 1836 to 1845, six out of eight were deficient crops. This irregularity in the seasons has been noticed by several political writers.

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* Those who want detailed information respecting the state of the weather and crops, the prices of corn, &c., may consult Bishop Fleetwood's Chronicon Preciosum; a Chronological History of the Air, Weather, &c., by Dr. Mead, published in 1749; Cobbett's Parliamentary History; The Annual Register of Politics and Literature; and the Tables of the London Statistical Society, &c., &c.

Burke observes, in the essay entitled "Thoughts and Details on Scarcity, "I beseech the government seriously to consider that years of scarcity and plenty do not come alternately or at short intervals, but in pretty long cycles and irregularly."*

The general conlusion is, that extremely deficient crops of wheat occur on the average once in twelve years; and that the extent of the deficiency, though less now than formerly, with a tendency to decrease, is one-third of the average produce.

LEASES.—The advantages of a lease depend, it is obvious, on the conditions it contains. An inspection of the draft agreement in the appendix—which is a fair specimen of the conditions of tenure generally offered—will sufficiently explain the reluctance of farmers in adopting them. A year to year tenancy is far better than a lease such as this,—clogged as it is with so many absurd and antiquated restrictions.

We do not intend, here, to discuss the question of "Tenant-right;" but its legal recognition would tend to dispense with the necessity for leases. And it appears only equitable that, as the tenant is legally liable to make compensation for "waste," the landowner should be bound, in certain cases, to compensate the tenant for improvement.

The time has arrived when the tenant, after paying in annual rent the full value of the privileges of occupation, must no longer yield personal or political subservience, or be subject to undefined feudal obligations and exactions.

In the framing of leases it should, in the first place, be presumed that the farmer, having served an apprenticeship, and, probably, had extensive experience, understands his business. Hence it will follow that, with respect to the details of management, there should be very few *positive* clauses. It may be expedient, in the last two or three years of the term, to prescribe the course of cropping, if the lease is not renewed, to prevent impoverishment; but, with this exception, and the obligation to pay the rent and taxes, &c., at stated times, it is not politic or desirable to fetter the tenant with restrictions in the course of cropping, &c., which only tend, by preventing the exercise of his judgment, to check his energy and enterprise.

When security of possession is guaranteed, it becomes the interest of every farmer to cultivate the land, according to his means, in the best manner possible. And it will be found that, the more liberal the terms of occupation, the better in general will the land be cultivated; and were it not to avoid casting a stigma on individuals, districts might be pointed out where the landowners are known to be tyrannical and rapacious, in which cultivation is in a most backward state; and on the contrary, where liberal conditions of occupation are granted, the farming practice is the most advanced.

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* Works; vol. 7, p. 404, ed. 1803.

GAME.—The preservation of an undue quantity of game is a great drawback on the profits of farming; and the retention of this remnant of the forest laws on the statute book is a disgrace to the intelligence of the age. It is unnecessary here to make an exposé of the iniquities perpetrated under the sanction of the game laws. The effects of the depredations of the priviledged beasts and birds on the crops of farmers are too well known, by the numerous examples afforded in every locality; and if these laws were abolished, and farmers had liberty to repress the undue increase of the game, the annual value of the land would be increased in the game-preserving districts fully 5s. per acre. But they are injurious, also, in a moral point of view. They provide the means by which an unprincipled landlord can oppress a tenant who may have incurred his displeasure. They are a fertile source of difference and disagreement between landlord and tenant, and hold out inducement to the working man to commence a career of crime. Thus they injure the tenant, ruin the working man, vex the landowner, and benefit nobody.

REDUCTION OF RENTS.—It has been shown above that a large proportion of the *strong lands* of Lancashire have, by severe and ill-judged cropping, been permanently deteriorated: that the average produce of the inferior soils does not in average seasons exceed twelve to fifteen bushels per acre, and seldom exceeds twenty bushels in the best. With this produce, and the present prices of grain, the growth of wheat on a large proportion of the strong lands cannot be profitably continued.

The rent of land in the vicinity of towns, and of the light lands in general, may not be materially affected by the fall in the price of grain; but the strong lands have long been, relatively to their capabilities, too highly rented;—and to provide for their permanent amelioration, there is required a reduction of rent, and simultaneously an increased expenditure of capital. The present deteriorated state of the old cultivated lands, may be fairly ascribed to the want of timely concession in this respect, immediately subsequent to the fall in the prices of grain in 1815, et seq. Since this period, farmers have had to contend with the unfavourable circumstances of a falling market, and a scale of rents fixed on higher antecedent prices; by which they have been deprived of the means, year after year, to repair the exhaustion of the crops; and impoverishment of the land is the result.

It will be the wisest policy to make now—when a further permanent depreciation in the value of agricultural produce must be looked for—the necessary alterations, and thereby prevent a further degree of permanent deterioration.

It will be observed that these remarks are founded upon the presumption that permanently low prices of grain will in future be established. And when we consider the immense extent of territory in the United States and in some of the British colonies available for cultivation, and the rapid accession, by natural increase and immigration, to the population of these countries, and the consequent increase and development of their productive capabilities, together with the impetus that will be given to the agricultural energies of continental Europe, and the experience of the present year, we shall find this position is warranted by the circumstances.*

AGRICULTURAL IMPROVEMENT.—Great improvement may be effected in many localities by judicious expenditure, and the fertility of the land, in process of time, be permanently increased. But many of the representations made by modern writers, and speakers at agricultural meetings, are fallacious. It has generally been assumed that to grow turnips, feed bullocks, and saturate the soil with manure, is sufficient to convert a naturally sterile into a fertile field.

But all farmers know that a just medium must be observed in manuring, and that an exhausted field, however highly manured, will not yield a greatly increased quantity of grain. Abundance of straw may be produced, but the grain will be of inferior sample and deficient in quantity.

When a soil, particularly a strong soil, is completely exhausted, to renovate it is extremely difficult. Manuring may foster and facilitate its recovery, but time alone and nature can effect a radical cure. To follow nature, not direct her, is a truth which must be our guide in the art of husbandry, as well as in philosophical investigations.

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* The following observations are from a recent number of the *New York Herald*:—"The exports for this season have been very large, and in face of the depreciation of prices abroad, and the depressed state of foreign markets, the shipments are weekly increasing in amount. If we are able to send forward such large quantities previous to the resumption of navigation, it is safe to predict a very extensive exportation when our stocks are renewed, and prices are much below those which are now, and have been for some time past, current. The canals of this state open on the 1st of May. . . . . The canals of Ohio, Indiana, and Illinois will soon be in full operation, with increased facilities for transportation, and the navigation of the western lakes will soon be free and safe for vessels of all classes. The whole west is literally running over with produce of all kinds, and we see no possibility of preventing prices reaching very low points."

Who has not observed the difference in the nature of the soil of two contiguous fields, the original character of which was identical; but one having been continued in an arable state, and the other as a meadow? The soil of the former has become of a light colour, and of a clayey consistence; while in the meadow, the soil is dark coloured and friable. The arable field has been manured as frequently as the meadow; but in consequence of frequent ploughing and repetition of crops, and abradation of the rains, has become exhausted of its organic constituents, and the earthy portion alone remains: while the meadow, being constantly in grass, and occasionally dressed with manure, has increased its original store. It is the abundance of organic matter that gives fertility to the soil; and this cannot be supplied instanter, but is the slowly developed product of natural causes, whose activities may indeed be quickened and promoted by the varied appliances of art and industry.

From these observations, it may be inferred that the most economical and proper method of renovating the exhausted soils, and improving the condition of agriculture, is to drain and summer-fallow the the arable lands, cleanse from weeds, manure well, and lay them down permanently for grass: dress periodically afterwards, with different manures, and in process of time the original fertility will be restored. In the meantime, drain and convert into an arable state the rushy pastures; and thus, by converting the land alternately from an arable state to grass, and *vice versa*, and not continuing any portion under the plough too many years in succession, the land may be preserved from deterioration, and by judicious tillage, be improved.

But knowledge of the proper method is not all that is required to cultivate with success. This knowledge is not so frequently wanting as some of our agricultural-dinner orators would endeavour to persuade us. Some farmers do not possess sufficient means, and others are thwarted in their proceedings by antiquated restrictions; or are intimidated into compliance to some crotchet of modern theory: and thus fettered in the exercise of their judgment, and aware that their fortunes, like the sword of Damion, are suspended on the caprice or want of information of the landlord or his agent; it is not surprising that, when they have succeeded in realizing a profit, that they stow it away in the coffers of the bank, rather than invest it in some permanent improvement. It has long been, and still is, the general policy of prudent farmers to make as little outlay as possible, to be reimbursed immediately after reaping each crop; and if summarily called upon to quit, to be prepared to preserve their capital from confiscation; and this policy, though injudicious in itself, is justified by the circumstances that occasion it.

Whatever improvements and discoveries may be made in the art of agriculture, the material advantages they may be capable of conferring on the agricultural classes will not be fully developed, until owners and occupiers of land be brought to a due sense of their relative duties. Their true interests cannot be dissociated; but it must be remembered, that their apparent interests may for a time, by injudicious regulations, not only be separated, but be made antagonistic and injury to both landlord and tenant, will in all such cases be the inevitable result.

CORN LAWS.—It is beyond the design of this Essay to enter into detail on the subject of agricultural protection; but the connection between the corn laws and the state of agriculture may be illustrated by the following summary view of agricultural history:—

About the close of the eighteenth, and during the early part of the present century, the prices of agricultural produce underwent a very rapid advance, which was occasioned chiefly by the great expansion of the circulating medium which took place at this period, to provide for the necessities of war, and the generally prosperous state of the country, occasioned by the improvements in machinery and the development of the manufacturing system. At the commencement of this period of prosperity, rents and wages being regulated by a scale of prices considerably lower than the existing price, the excess, for a time, was a bonus to the farmer on his ordinary profits.

The advance of rents and wages speedily followed up the advance in the price of corn; but, until the maximum was attained, the farmer was always placed in the advantageous position of having his pecuniary obligations calculated on prices lower than those actually current.

But in 1815 this state of things became reversed. The termination of the war and the falling off simultaneously of the foreign demand for manufactured fabrics, and, in consequence, the paralyzed condition of the manufacturing classes; the contraction of a factitious and depreciated currency; and the increase in the quantity of home-grown corn, occasioned by the extension and improvements in tillage, caused a sudden fall in the prices of commodities; and then commenced a period of agricultural distress, which has continued, with occasional alleviations, up to the present time; during which farmers have had to contend with the unfavourable circumstances of a falling market; with increased rates, and rents and wages fixed by the standard of higher antecedent prices.

To obviate these inconveniences was the object of the famous act of 1815, which prohibited the importation of wheat until the price became 80s. per quarter.

That this act was not adapted to remedy the evil, is clear; for in the following years complaints of agricultural distress were loud and importunate. In 1822 this act was modified, and importation allowed when the price of wheat was 70s. per quarter, on payment of 12s. duty, and 5s. additional when the price was between 70s. and 80s. But complaints of agricultural distress still continued, with unmitigated vehemence; and, in 1827 and 1828, the Corn-law was again modified, and a sliding scale of duties adopted.

But complaints of agricultural distress were frequent as before, and in 1841-2 heightened into a panic, when Sir R. Peel's bill for reducing the duties was brought in, and sanctioned by parliament.

It is obvious from these remarks, and the general concurrence of of history, that success in cultivation does not depend on legislative enactments; and that no law can either secure agricultural prosperity, or prevent distress.

The duties have not only had no tendency to regulate the price of grain, but have themselves been adjusted, from time to time, in accommodation to the current scale of prices otherwise determined; and free trade is merely the ultimate of a series of adaptations required by the circumstances of the times.

It will be remembered that the distress so frequently complained of cannot be said to have afflicted with great severity any of the agricultural classes, except tenant farmers, and the reason has been pointed out above. The price of produce fell; but rents, wages, &c., did not undergo a corresponding reduction, or agricultural distress would probably not have been heard of.

And if the agricultural classes will now make a proper revision and re-adjustment of their respective obligations, though a temporary depression may be occasioned, they will soon recover a state of prosperity co-ordinate with that of the community in general.

And should this Essay be instrumental in eliciting inquiry, which will tend to effect an equitable adjustment of the relations of the owners and occupiers of land, and contribute to the adoption of correct principles in agricultural economy, it may not have been written in vain.

APPENDIX.

SHOWIN GES THAT HAVE BEEN MADE IN THE
ORMANS, IN 1066.

A.D.	Price of Wheat per quarter. s.	d.	L	REMARKS.
1070				scarcity of grass. Hay dear, 3 to 6 guineas per ton.;
				per quart ; butter dear, 7d. to 9d. per lb. Much
1100				ed. Ditcher, 10d. a-day ; carpenter, 1s. 2d.—*Stat.*
1123	12	0		f good harvests. Exportation continued.
1202	12	0		slater, 1s. 2d. Bricks, 12s. per 1,000.—(*Tables of*
				Statistical Society.)
				be occasioned by "engrossing." Riots in Shropshire,
1288	3	0		e, and Cumberland, on account of high price of corn.
				prohibited.—(*Stat. Tables.*)
1314	20	0		s petition parliament for permission to export barley.
				of corn allowed.
				f bad harvests.
				n sessions of Parliament, 702 acts were passed for
				enclosing commons, and draining.—(*Wade.*) A sys-
				-laws established, the object of which was to dis-
				ortation, by withdrawing the bounties previously
1316	39	6		couraging importation by low duties.—(*Ann. Reg.*)
1329	6	8		rtation of corn.—(*Ann. Reg. of Politics & Literature.*)
				tive harvests about this time.—(*Ann. Reg.*)
				xceeded imports.
1351	6	8		son.—(*Stat. Tab.*)
				Parliamentary inquiry into cause of scarcity.—

[AGREEMENT REFERRED TO IN PAGE 65.]

PARTICULARS

OF

ALL THAT MESSUAGE, TENEMENT, OR FARM,

Situate, lying, and being in the township of ———, in the county of Lancaster, belonging to A—— B——, as landlord or owner thereof; together with the several Fields, Closes, or Parcels of Land thereunto belonging, that is to say :—

Names of closes.	State of cultivation.	Area. A. R. P.	
Barn Field	Pasture	10 0 0	To remain in pasture throughout the term.
Great Field	Wheat stubble	20 0 0	To be well cleared, and cropped the first year with turnips; second, barley, and laid down with grass seeds.
High do	Do. & clover	15 0 0	Clover to be mown first year; second, oats; third, fallow, well cleaned and manured; fourth, wheat, sown with clover.
Ten acre	Clover root	10 0 0	To be broken up for oats, and cropped as above.
Little Meadow	Meadow	8 0 0	To remain as meadow throughout the term.
Great do,	Do	15 0 0	Do., do.
Browy Field	Wheat	12 0 0	To be sown with clover and grass seeds for permanent pasture.
Marsh Field	Do.	10 0 0	To be beans next year, then summer fallowed and manured;—wheat, clover, oats.
Daisy Field	Pasture	15 0 0	To remain as pasture.
Rushy Croft	Do	5 0 0	Do., do.
Marl Hey	Oat stubble	12 0 0	First year, turnips, beans, &c.; second, barley or oats; third, clover; fourth, ditto; fifth, oats.
Lower do	Do	8 0 0	Do., do.
Pathway Field	Bean stubble	12 0 0	First year, fallow; second, wheat; third, oats; fourth, turnips, &c.; fifth, barley; sixth, clover, &c.
Potato Field	Oat stubble	8 0 0	First year, turnips & potatoes; second, barley; third, fourth, and fifth, clover; sixth, oats.
		160 0 0	

Conditions *of letting the said Messuage, Tenement, or Farm, with the appurtenances thereunto belonging, now in the Tenure or Occupation of —— as Tenant thereof, with the exception of all Mines, Minerals, Sand, Gravel, Stones, Clay, Marl, &c. And the Timber, Trees, Plants, Underwoods, &c., and all Commons or Waste Land, and all Streams of Water, and the use of the present and future Ways and Roads, "both public and private, for the landlord or his Tenants," with liberty of entry for Landlord, his Agents and workmen, to use, get, and dispose of the same, &c., or to make or alter any Ways or Roads, to make any new Ways or Roads, and to view stvte of Farm, &c. And to have all powers and authorities for all those purposes. And also to plant trees in hedge-rows or in clumps or otherwise, and to fence the same; and to inclose and fence any Woodland. And, evcept Game, Fish, Rabbits, and Wild Fowl, with liberty of sporting.*

The term to be for years from the second day of February next, as to the Lands (except the field called Rushy Croft, which is to be allowed the present tenant as an outlet); and from the first day of May following as to the housing, outhousing, and outlet.

The tenant to pay the yearly rent of £ , to be due and payable on every 24th day of June in each year, during the said term; the first payment to be made on the 24th day of June next.

And subject to the *additional yearly rent of ten pounds an acre, for every acre, and so proportionably for any greater or lesser quantity than an acre, broken up or mismanaged,* contrary to these conditions, to be paid as increased rent, and recoverable as rent in arrear.

The tenant to pay the rents and all present and future taxes, rates, duties, assessments, and impositions (including the Tithe Commutation assessment.)

Tenant to serve all personal offices, and to do the statute duty at the highways.

Tenant to keep a dog at his own expense, for the use of the landlord, and to do days boon-work yearly, with a cart and horse and an able driver, for the landlord, when required.

Tenant to keep the buildings (main wood and main walls excepted), and also the windows, slate, ways, roads, hedges, fences, cops, ditches, bridges, watercourses, drains, plats, gates, posts, and stiles, and every other part of the premises in good and tenantable repair during the term, and at the end or other sooner determination thereof, leave the same in such good and tenantable repair.

The taker must ditch effectually customary roods of ditching yearly, upon an average, at his sole expense, in such part of the premises as shall most want it.

Tenant to manage land in a husbandlike manner, and to keep the same well-manured, and in good heart and condition.

The taker must not sell any hay, straw, dung, compost, or manure, the produce of the said premises, or to be made thereupon, or that shall arise from any tithes or other things to be let or occupied therewith ; but consume the same in a husbandlike manner upon the meadows and other lands proposed to be let, in proportion to their breadth, and as shall be most for the advantage and improvement thereof, the taker in default of performing any part of this condition, to pay *two pounds for every load used contrary thereto ;* the same being paid as increased rent, and recoverable in the same manner as rent in arrear.

The manure, &c., which shall arise or be made in the last year of the term, to be left in the common midding-steads, for the benefit of the landlord.

No part of the land to be broken up, or in tillage, excepting such parts and for such periods only as hereinbefore or hereinafter mentioned, but to be used as meadow and pasture land only, during the term.

The taker must not white-land or summer-burn, nor leave above acres of wheat at the end of the term to be taken by him and the succeeding tenant, according to custom.

Not to pasture the meadows or stubbles after the 25th day of December, in the last year of the term.

Tenant not to suffer any waste or trespass, or any new or unusual ways or roads (except as aforesaid) over the said premises or any part thereof, but hinder and prevent the same to the utmost of his power.

Tenant not to cut down any trees, plants, or underwoods, but shall preserve the same, so as to prevent sheep and other cattle from doing damage thereto ; and *not to cut or lop any hedges, except for repairing the same.*

The tenant not to kill or destroy and game, fish, or wild-fowl, upon the said premises, or any part thereof, *but do all in his power to preserve the same, and from time to time, during the said term, permit and suffer the said A.B. to bring actions, in his (the tenant's) name, against any person or persons sporting or trespassing upon the said premises, and shall not withdraw any such action, or suffer himself to be non-prossed, without the consent of the landlord in writing.*

The tenant to deliver up possession at the end of the term.

A sufficient part of the house, out-housing, barn, shippon, and stabling to be allowed to the succeeding tenant, who shall be authorised to enter thereon and keep possession thereof from the second day of February in the last year.

The landlord or owner, or any person by his directions, to have liberty to enter into and upon the said buildings at any time during the term, in the day time, to view the state and condition thereof, and give notice in writing of all the repairs necessary to be done upon the premises, which, if not done within one month next after such notice, may be done by the owner, and the expense shall be recoverable in the same manner as rent in arrear.

Provided always that the said A.B., his heirs and assigns, shall be at liberty to re-enter upon the said Premises, and hold and enjoy the same as his or their former Estate or Estates, in case the tenant shall neglect to pay the said yearly rent and conditional rents, for twenty-one days after they shall become due, or to do or perform all or any of the covenants, conditions, or agreements hereinbefore mentioned, or shall make any Assignment for the benefit of his Creditors, or become Bankrupt, or if his goods and chattels, or any part thereof, be taken in execution, or if he shall do any act whereby the said hereditaments shall become vested in any other person or persons; then, and in each or any of such cases, the said lessor, his heirs, or assigns may, if he or they shall think fit, be at liberty to re-enter upon the said hereditaments, as of his and their former estate.

Subject to these proposals and conditions, C.D.,
of   in the said county
engages to farm the aforesaid premises at the clear yearly rent of £   , and the said A.B. agrees to accept him as tenant.

As witness their hands the   day of   one thousand eight hundred and

Signed in the presence of }
E.F. }

DOBSON AND SON, PRINTERS, PRESTON.